

University of Pretoria etd – Novellie, J (2007)

INSTITUTE FOR AFRICAN LANGUAGE STUDIES

AN EXPLORATION OF THE CONSTANT AND TRANSFORMATIVE

Jacqueline Novellie
20042109

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Mentor: Rudolf van Rensburg

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List of Abbreviations

CBD	Central Business District
ALMA	African Language Material Board
UNESCO	United Nations Educational, Scientific and Cultural Organization
PANSALB	Pan South African Language Board
ISDF	Integrated Spatial Development Framework
SANAF	South African national Air Force
SAHRA	South African Heritage Resources Act
NZASM	Nederlandsch Zuid-Afrikaans Spoorwegmaatschappij
MBS	Building Management Service
ACS	Adjustable Climbing System
NBR	National Building Regulations
SABS	South African Bureau of Standards

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FOREWORD

An interest in African space-making philosophy was triggered by a previous project regarding African Places of Worship. Research done for this brought to the author's attention the difference in spatial experience of various cultures. The way in which a society experiences space would be expressed in its way of life and in its dwellings. This expression forms an integral part of the heritage of a culture.

OBJECTIVE

After the Group Area Act was abolished in 1994, integration has been taking place. However, many of the structures currently found in the CBD of Pretoria, cannot adapt to the needs brought on by integration. To facilitate change of users and programme, new interventions need to be designed for transformation.

The objective of this dissertation is to investigate the development of an appropriate South African spatial expression for an integrated capital city, Pretoria. This will be done by designing an Institute for African Language Studies.

Firstly, appropriate theory will be investigated to determine the various ways in which different cultural and social groups experience space. The context study will focus on determining which of these spatial experiences can be found around the site. During the design development phase, ways in which to accommodate these expressions will be investigated as well as ways to allow for interaction between the various groups. To conclude, an assessment will be done to determine the success of the investigation.

PROBLEM STATEMENT

Currently there are many such institutes abroad, specifically in the United States of America, with the main archive for African languages located at Columbia University, New York. These language institutes in Africa primarily represent only the local languages and have limited, if any, interaction with institutes abroad. This project aims to be a point of interaction between the institutes.

Pretoria, as a capital city of South Africa, receives many international visitors. These are predominantly delegates, politicians, businessmen and academics rather than tourists, visiting purely for sightseeing and pleasure. The institutional buildings of Pretoria become the gateways to the city from where visitors can experience South African culture as well as the country's standing in the international community.

As the future framework for Pretoria includes a PAN African Parliament, the need for competent translators capable of speaking the represented African, and other languages will arise. The project will provide training facilities and offices for translators.

CLIENT

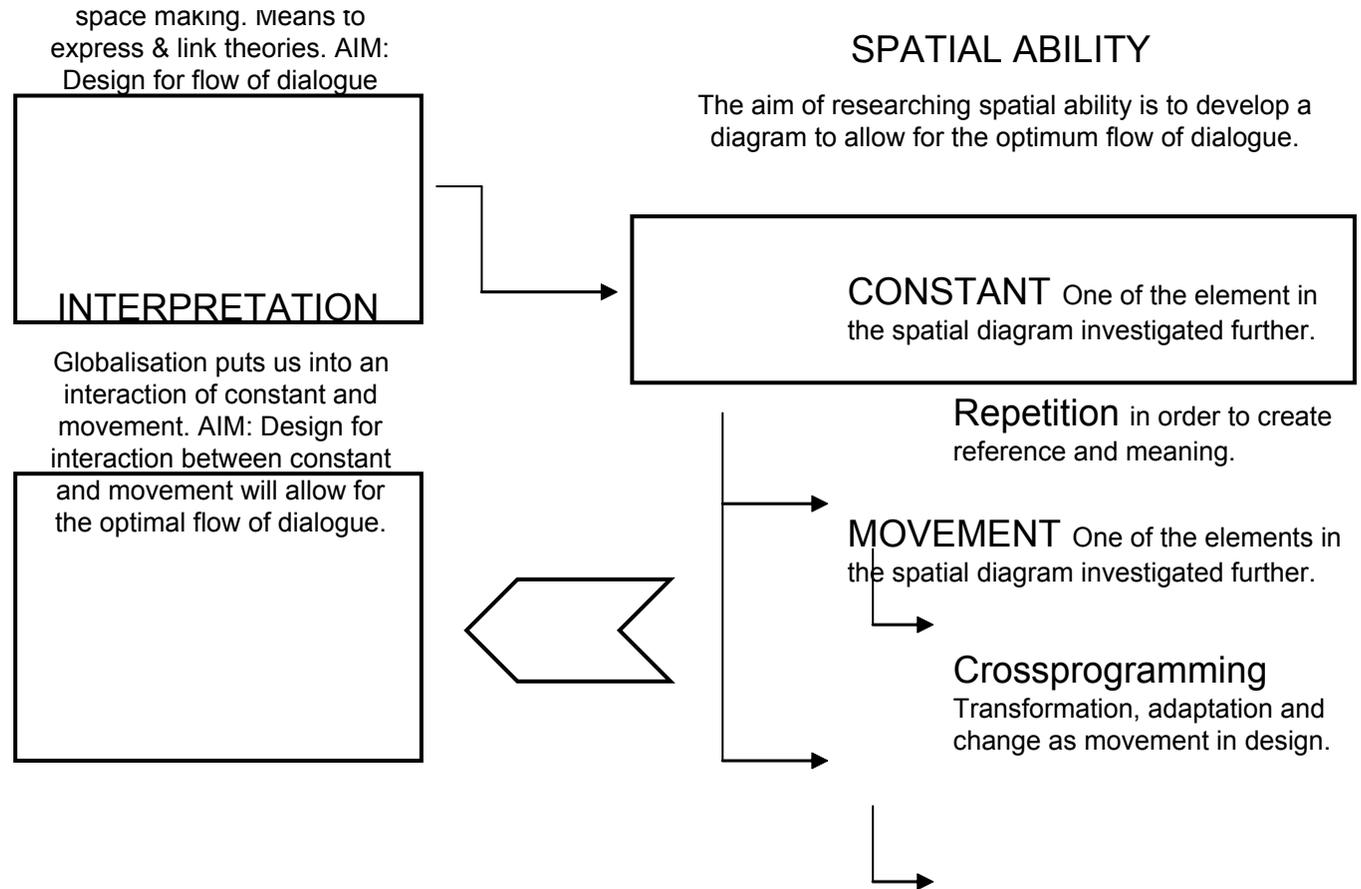
The clients that will occupy the building are The African Language Material Archive (ALMA), maintained by UNESCO and the Pan South African Language Board (PANSALB). Funding can be obtained from the Department of Art & Culture and the Department of Education of South Africa.

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Theoretical Exploration



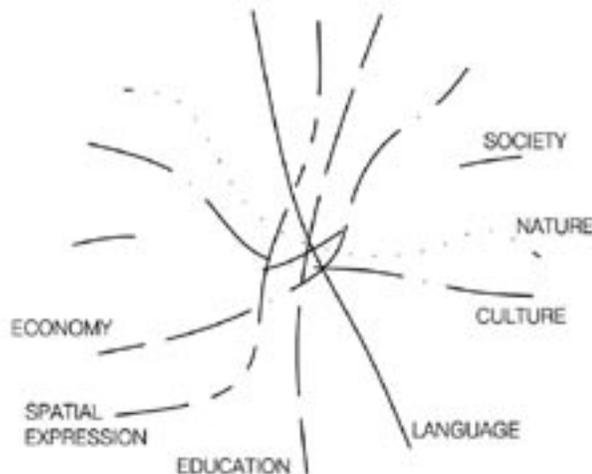
The diagram serves as a table of content and illustrates the theory investigation process that follows.

2.1 Dialogue

2.1.1 Introduction

In their book, *A Thousand Plateaus* (1993:21-23), philosophers Gilles Deleuze and Felix Guattari introduce the concept of a “rhizome”. They explain the rhizome as a system of strands that “connects any point to any other point”. (*ibid.*) Within the rhizome the strands are in dialogue with each other in a non-hierarchical manner and where they meet a “plateau” is formed. The “plateau” refers to an area of intensities usually found in the middle of the rhizome.

The characteristics of a rhizome is explored by drawing a diagram. The rhizome illustrated in the diagram is that of modern existence of a city dweller. This is presented as strands of culture, economics, society, language, education, nature and spatial expression. These strands are in ‘dialogue’ with each

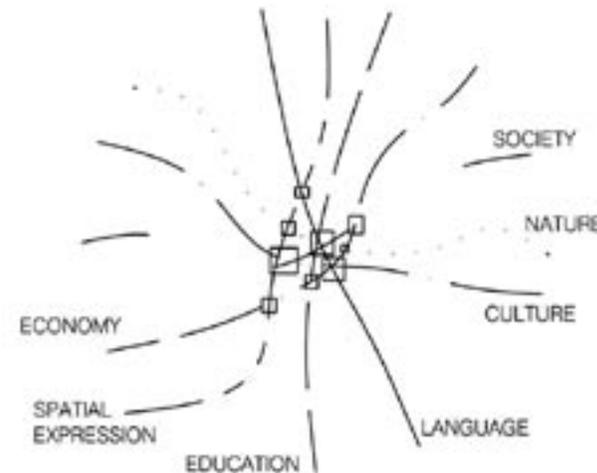


other when they connect with another.

2.2.2 Investigating the “rhizome” and its “plateau”

RHIZOME

The diagram illustrates strands of a rhizome encountered in everyday existence of a city dweller. In the centre where the strands connect a plateau of intensities occur. This is where the dialogue between the strands is most vibrant.



INTENSITIES

The points of interaction are clustered around the plateau forming an area of intensity. This model can be used in the design of an urban area or building. By analysing the intangible qualities of a site, a map of the strands and their interaction points can be identified. The design should accommodate the interaction between strands and therefore allow for a flow of dialogue between the strands.

2.2.3 Problems with the dialogue

In order to survive and contribute in our society, it is important to understand the flow of dialogue or the *zeitgeist* of the time. Not understanding the dialogue can render a person outside the social network he finds himself in. A break in dialogue can occur due to illiteracy where a person is unable to read the world that surrounds him. Author Godwin Sogolo, *Foundations of African Philosophy, A Definitive Analysis of Conceptual Issues in African Thought* (1993:26), writes about the translation of African literature. The original meaning of a text is often lost or changed during the process of translation because one language cannot accommodate the full potential of the other. This is an example where a break in dialogue can occur.

There are many Institutes for African Language Studies abroad, especially in the United States of America. Even the main archives for African languages are situated in Massachusetts. The language institutes situated in Africa have very little interaction with the institutes abroad. This can be seen as a break in dialogue as research is not shared. This project will aim to be a point of interaction between the institutes.

The break in dialogue can also be translated into space making principles. For space making to evolve it is important for one generation to build on a previous generation’s knowledge. If this pattern is broken a loss of heritage will occur.

Theoretical Exploration

2.2.4 Objective

The following dialogues will be investigated in the design process:

- Dialogue between the user and the building
- Dialogue between users
- Dialogue between the building and its context
- Dialogue between the building and culture
- Dialogue between African languages
- Dialogue between African and other languages
- Dialogue between the tangible and the intangible
- Dialogue between constant and transformative

The aim of a rhizome is to attach any point to any other point. Care must be taken not to isolate any one of the dialogues. The objective is to allow them to interact without hierarchy.

2.2 SPATIAL ABILITY

2.2.1 Theoretical background

In the book, *African Nomadic Architecture: Space, Place and Gender* (1992:125), Labelle Prussin discusses the understanding of spatial qualities by different cultures. This is called “spatial ability” and refers to how well a person can present knowledge about space and organise spatial information. Cross-cultural psychologist, J.W. Berry, discusses a test for spatial ability called “field dependence/independence”. (Berry 1992:124-129)

“Field-dependence” is the term used for persons who show a reliance on external and visual cues, resulting in a stronger

consciousness of boundary and limitation. This cognitive style shows a literal interpretation of space.

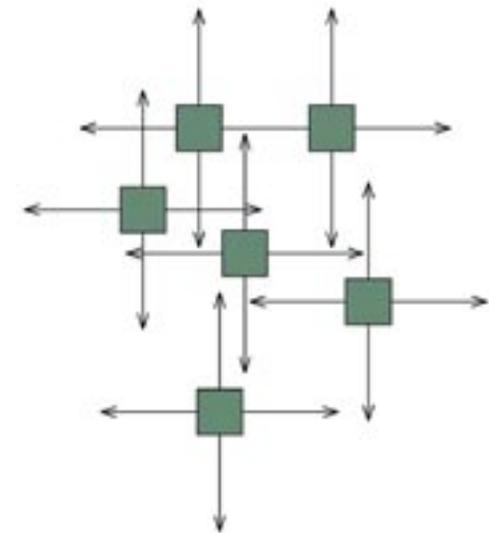
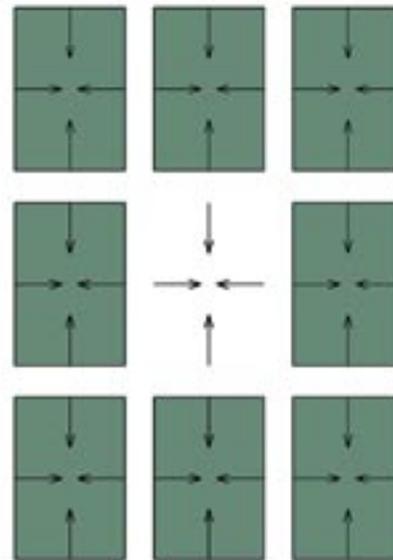
A greater understanding of space is called “field-independence”. This is achieved when the individual expresses such a grasp of space that he/she can think beyond the natural boundaries. Field-independence occurs when the person thinks about a space from within and relies on bodily cues within themselves to perform the tests.

John Berry concludes that sedentary people show field-dependent tendencies where people with a more nomadic (or in this case transformative lifestyle) show field-independence.

Neil Leach, *Forget Heidegger in Designing for a Digital World* (2000) criticises Heidegger for having principles applying to a sedentary society when he states that the way in which we engage with architecture can no longer be seen as “a static condition, but a dynamic process.” (*ibid.*:26)

Leach’s argument is supported by the concept of globalisation transforming the world into a state of change and adaptation. City dwellers are becoming nomadic and our cities and buildings should take on ‘nomadic’ characteristics.

The main characteristic of nomadic architecture, according to Labelle Prussin, is that it is a “process”, reacting to the changes in environment and need, and not an end product. (*ibid.* p.42)

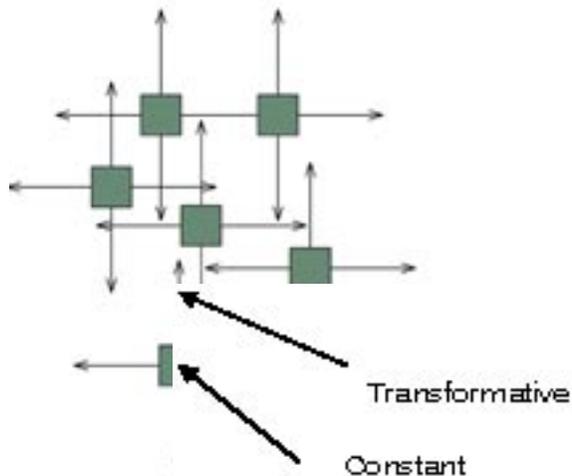


Theoretical Exploration

When considering the two diagrammes devised from the field-dependence/independence test, it is clear that the independent model will allow for a dynamic process and a greater flow of dialogue. For that reason the field-independent diagramme is chosen as a guideline in the analysis of the site and the design process.

The field-independent diagramme allows for the optimum flow of dialogue by focussing on the strands and their interaction with each other. This diagram can be used as an analytical tool as seen in 2.2.2. The diagram will be investigated further in 2.3.

2.3 SPATIAL EXPRESSION



Space making principles as well as language develop through a combination of sedentary and transitional movements. In almost all South African cultural groups there is a strong history of movement and settling from where a new culture, language, space-making technique and all other elements in the dialogue is created.

The following investigation is an exploration of staying and movement in space making principles:

2.3.1 CONSTANT

2.3.1.1 Characteristics of a Constant in Architecture

REPETITION
CONSISTANT
REFERENCE
STATIC

Labelle Prussin maintains that meaning is given by repetition. (1995: xxi) Prussin discusses how nomadic movement can allow for a constant to occur through repetitive behaviour. Places visited by East African nomadic tribes on a regular basis become significant.

Archaeologist, Bruce Chatwin, refers to the same phenomena in the Aboriginal people of central Australia. Aboriginals record the characteristics of a landscape in songs which are repeated each time the area is visited. If tribes include an area in its songs, this becomes a sacred place. (Chatwin, B. 1987: 119)

In a sedentary context too, areas used regularly over time show a pattern of significance and convenience. It is therefore important to identify areas of repetition and to preserve them as they can serve as a reference for transformative elements developing

around them.

2.3.1.2 Constant as generator of design

Further investigation calls for an analysis of the constants on the site and its surroundings. A constant can be identified by investigating use. Areas showing a high amount of activity over time are constants. Activity can refer to movement patterns, density and layers of history. These will be used to analyse the site to identify the constants.

2.3.2 MOVEMENT

“Our nature lies in movement, complete calm is death.” Pascal, Pensees (from Chatwin 1987:183)

In an article titled ‘Anywhere out of this world’, Baudelaire makes the following observation:

“I think I would be happy in that place I happen not to be, and this question of moving house is the subject of a perpetual dialogue I have with my soul.” (Chatwin 1987:183)

2.3.2.1 Characteristics of Movement in Architecture

CHANGE
ADAPTATION
DYNAMIC
TRANSFORMATION

2.3.2.2 Movement as generator of design

“Mobility in space necessitates a set of architectural transformations that enhance and hone spatial awareness.” (Prussin 1995:188)

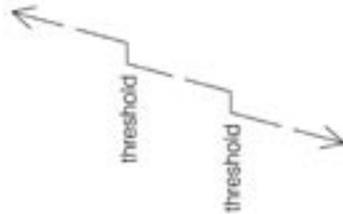
Theoretical Exploration

Thus, a change in perception of a space will allow for a greater grasp of the individual's position in the space and therefore will lead to field-independence.

Uninterrupted flow = movement as a constant



Interrupted flow = movement as transformation



Thresholds allow for conscious transformation of spaces and a dialogue between different spaces.

2.3.2.3 Bernard Tschumi's "Cross-programming"

Bernard Tschumi's principles of "cross-programming", as explained in *Architecture & Disjunction* (1994: 253-254) will be used to investigate transformation in architecture. In this publication he proposes principles of adaptation and change.

'Architecture is the combination of space, events and movement without any hierarchy.' (*ibid.* 162)

S	E	M
Space	Event	Movement

Tschumi's concept of cross-programming refers to two aspects:

- Activities must be able to overlap.
- Building must be able to adapt to different programmes over time.

Both of these concepts will allow for a flow of dialogue by emphasising transformation, adaptation and change as movement in design.

Overlapping of the programme within a design will allow for users to cross paths and for vibrant urban interchange. The unexpected interaction resulting from this is the very life of a building.

In accordance with the above theory, a building should be designed for a wide range of events. When this is done from the design process it should have a much longer lifespan and will be more sustainable.

Dialogue between function and form results in spaces of urban interchange. In this way the flow of dialogue is not only increased between the different users of the building, but also between the users and the building/urban surroundings.

2.3.2.4 UN Studio's "Systems" and "Kaleidoscope moments"

UN Studio's Ben van Berkel and Caroline Bos present their concept of "deep planning" in *Domus* (2002 p.100-105). They state that architecture for today should allow for movement and flow. To them a project should not result in a "thing" but should be a "system" of continuous development. An analysis

of movement as done by UN Studio would consist of the following:

- Types of movement and direction of the various trajectories,
- Their prominence in relation to other transportation means on the site,
- Duration, and
- Links to different programmes and interconnections. (*ibid.*)

This connection between movement and duration is what they refer to as "deep planning".

Van Berkel & Bos also refer to "kaleidoscope moment" where density of movement occurs or where flows of movement intersect.

2.4 INTERPRETATION

2.4.1 Conclusion

The process of globalisation and integration has brought the world closer to us. We, as city dwellers, have the opportunity to interact with other cultures from within our own niche. This act of densification of cities has also resulted in the densification of dialogue, as we are now faced with compacted and layered sets of dialogue.

Individuals are now faced with a dialogue which changes constantly. This means that globalisation has placed us into a state of transformation, even if we are sedentary.

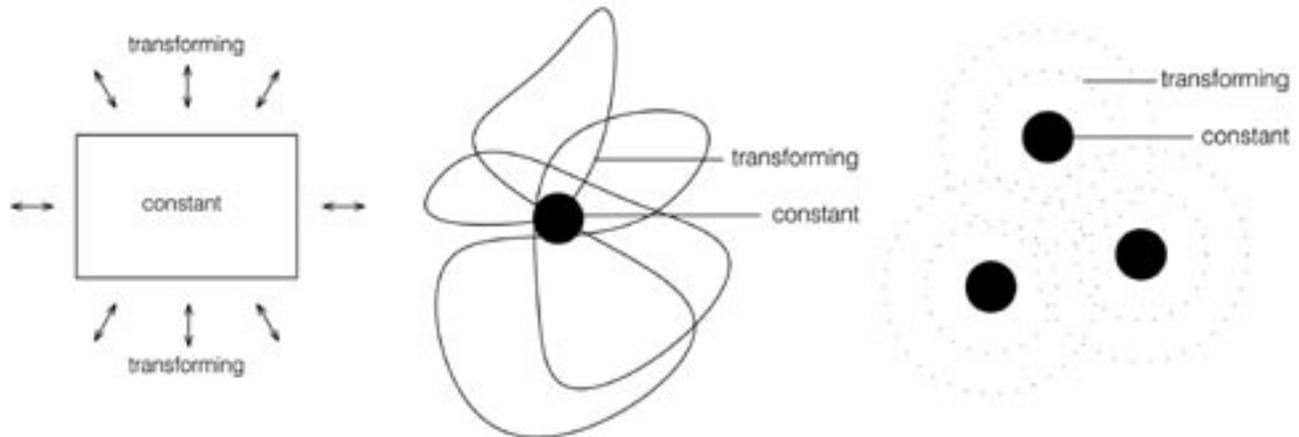
For this reason we no longer have only an 'African Dialogue'

but have changed to having a dialogue in Africa. Therefore we should also aim not to develop African Space but space in Africa.

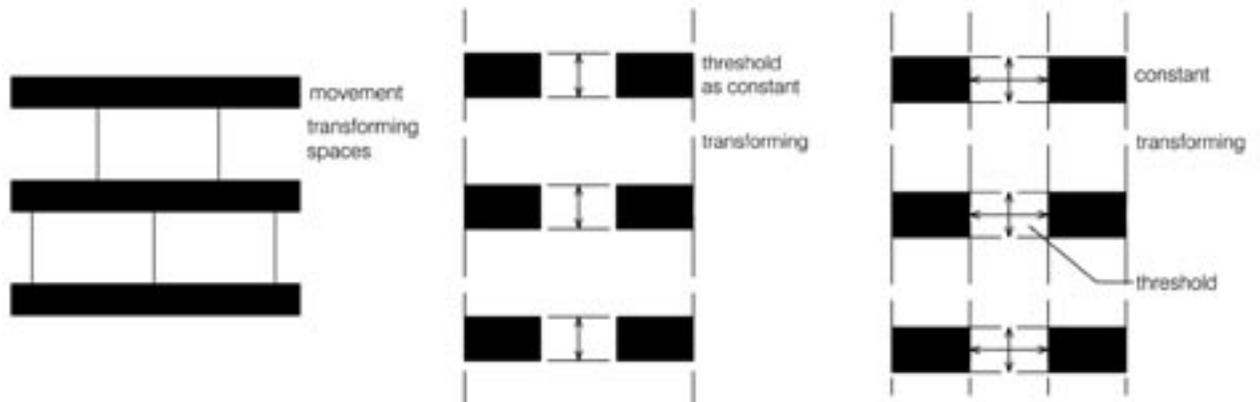
A space acknowledging this will allow for a balance between elements of consistency and elements with an adaptive, transformative nature. The interaction between these opposites will brake down the dualistic thinking by expressing the dialogue between the two.

Dutch Architect, Ben van Berkel, of UN Studio, remarks that “it’s not enough to design for movement only: you have to build in spaces, activities and intersections where people will leave the flow.” (2002:105) To explain this statement he refers to Schiphol Airport. An area of seating was removed to accommodate a new corridor of shops. The result was a decrease in business for both the new and the existing shops because the movement through the corridor was now too fast for people to stop and shop.

2.4.3 Exploration of interaction between constant and transformative



2.4.4 Exploration of interaction into architecture



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Context

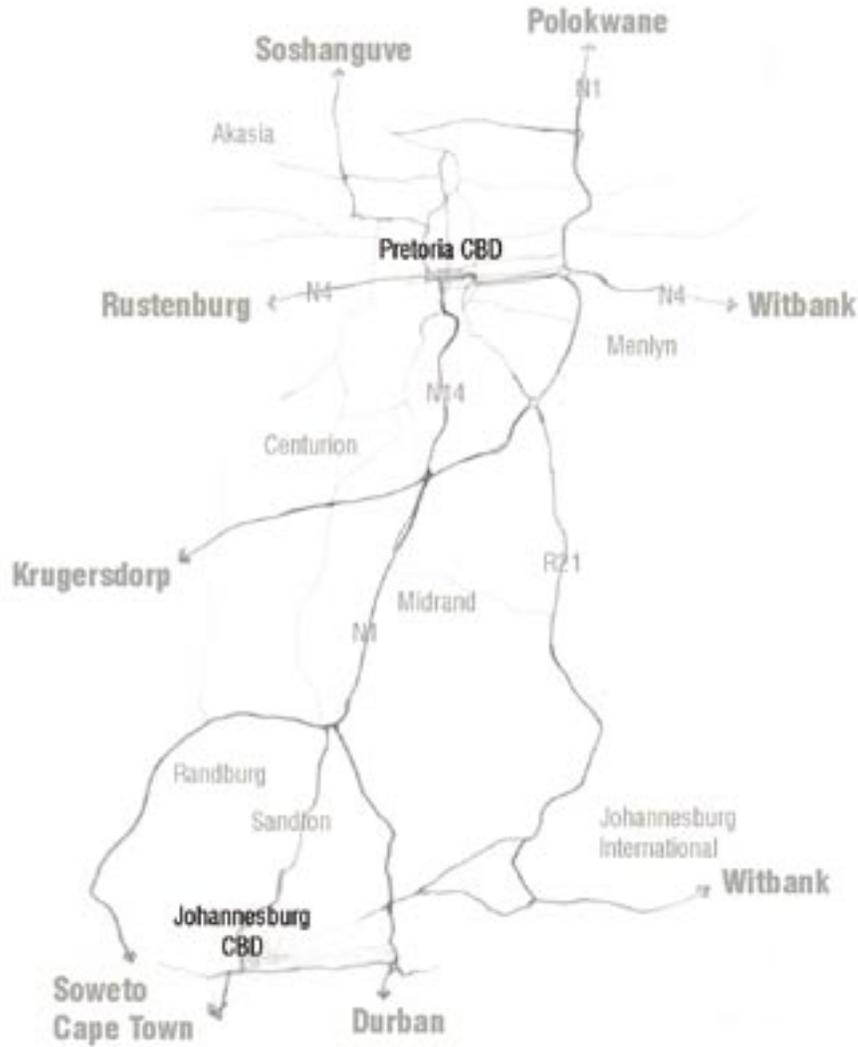


fig.3.1 Road Map: Pretoria, Johannesburg and surrounding areas

fig.3.2 Road Map: Pretoria Inner City



Vehicular

Main arteries entering Pretoria:

N1 north: Polokwane

N1 south: Johannesburg (via N14)

R21: Johannesburg International Airport

N4 west: Rustenburg

N4 east: Witbank

The site is easily accessible from these major roads. Road signs to and from the inner city area is clear and easy to follow. The site is situated just off the significant Paul Kruger Street - an axis linking Church Square with Pretoria Station.

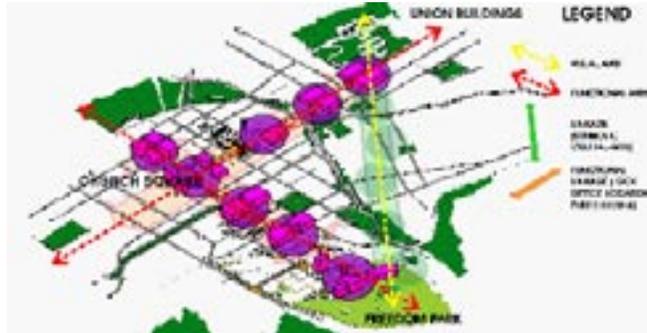
Public Transport

The site is situated within walking distance of Bosman Street Station (210m) and Pretoria Station (550m). The Gautrain Station will be located next to the Pretoria Station which will link Johannesburg and Johannesburg International Airport with Pretoria. Inner city bus stops as well as private taxi's are located outside Pretoria Station. Local and international visitors can reach the site by public transport.

fig.3.3 Public Transport Map: Train Stations

Context

ISDF Framework



Tshwane Integrated Spatial Development Framework

(compiled by Tshwane Municipality)



Precincts

New precincts proposed for the city centre are illustrated on the map above. The area in which this study will be undertaken is the Museum Park Precinct. The vision of the framework for this precinct is to express our cultural heritage.



Pedestrian and Public Transport Spine

Paul Kruger and Church Street are earmarked to become pedestrian priority routes, linking the future Gautrain Station with other stations and attractions in the city centre. These routes will be serviced by a bus system that could later be replaced by a tram or light rail system.



Private Transport and Parking

A system of one-way streets around the periphery of the city centre will be dedicated to private transport. Parking facilities will be provided along these routes and will link with pedestrian and public open spaces.



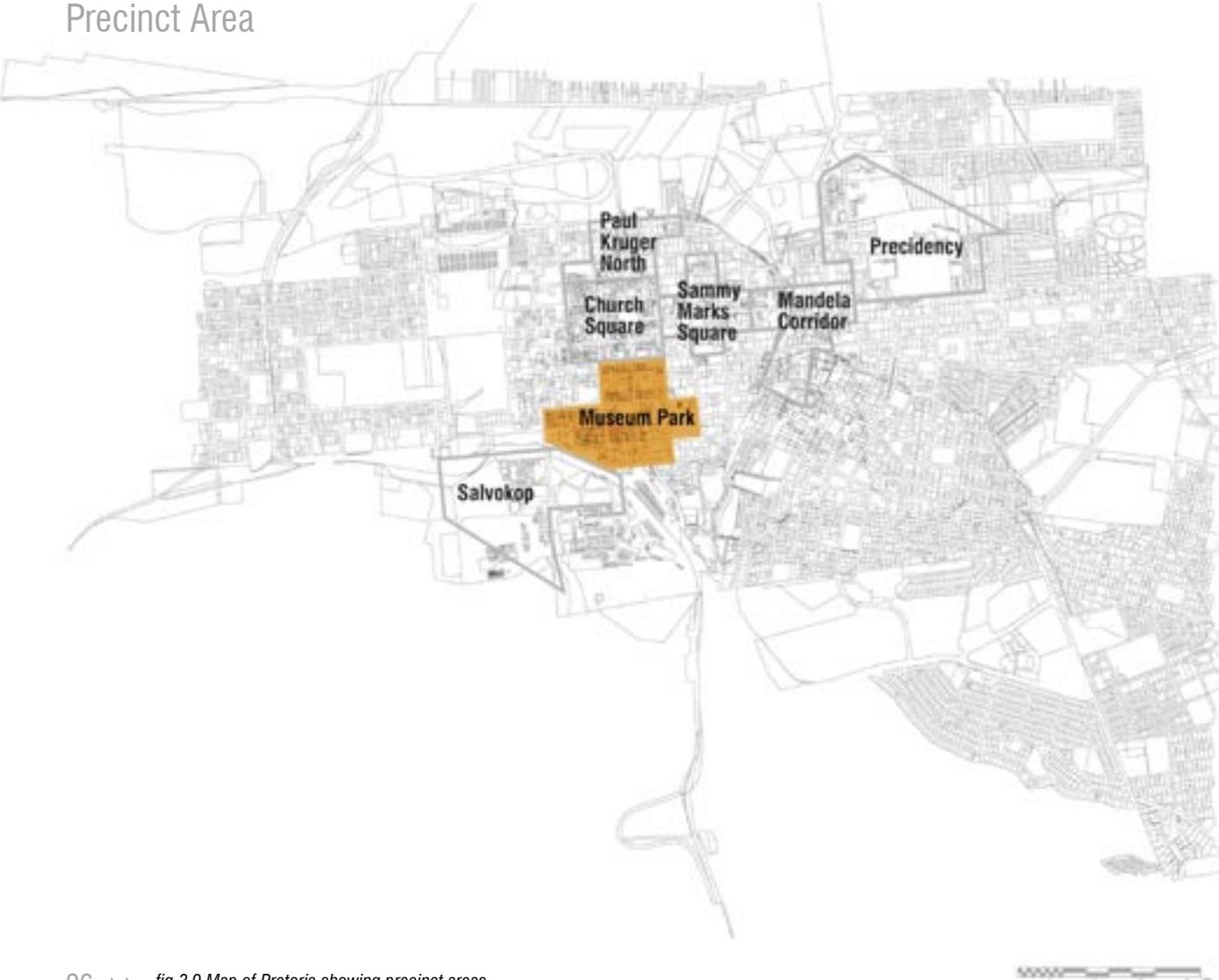
fig.3.4-3.8

Public Space Network

A network of public space and green space will be developed to correspond with pedestrianised areas.

Context

Precinct Area



MUSEUM PARK PRECINCT

The site is situated in the Museum Park precinct as proposed by the Tshwane ISDF. This precinct was chosen for two reasons. Firstly, the theoretical exploration pointed out that a site should be chosen that is on the border of the CBD where interaction between field-dependent and independent spatial expression can be found. Secondly, the chosen topic, an institute for African language studies, fits into a cultural and historical context.

STUDY AREA

The area includes the South western border of the central business district which is mainly within the Museum Park Precinct. The aim of studying this area is to compare spatial characteristics of the CBD with that of its peripheries.

SITE

The site, situated on the corner of Bosman and Minnaar Street hosts views of the City Hall, Pretorius Square and the Transvaal Museum. Currently the site is used as parking for employees of the adjacent Spoornet building.

Context

Study Area

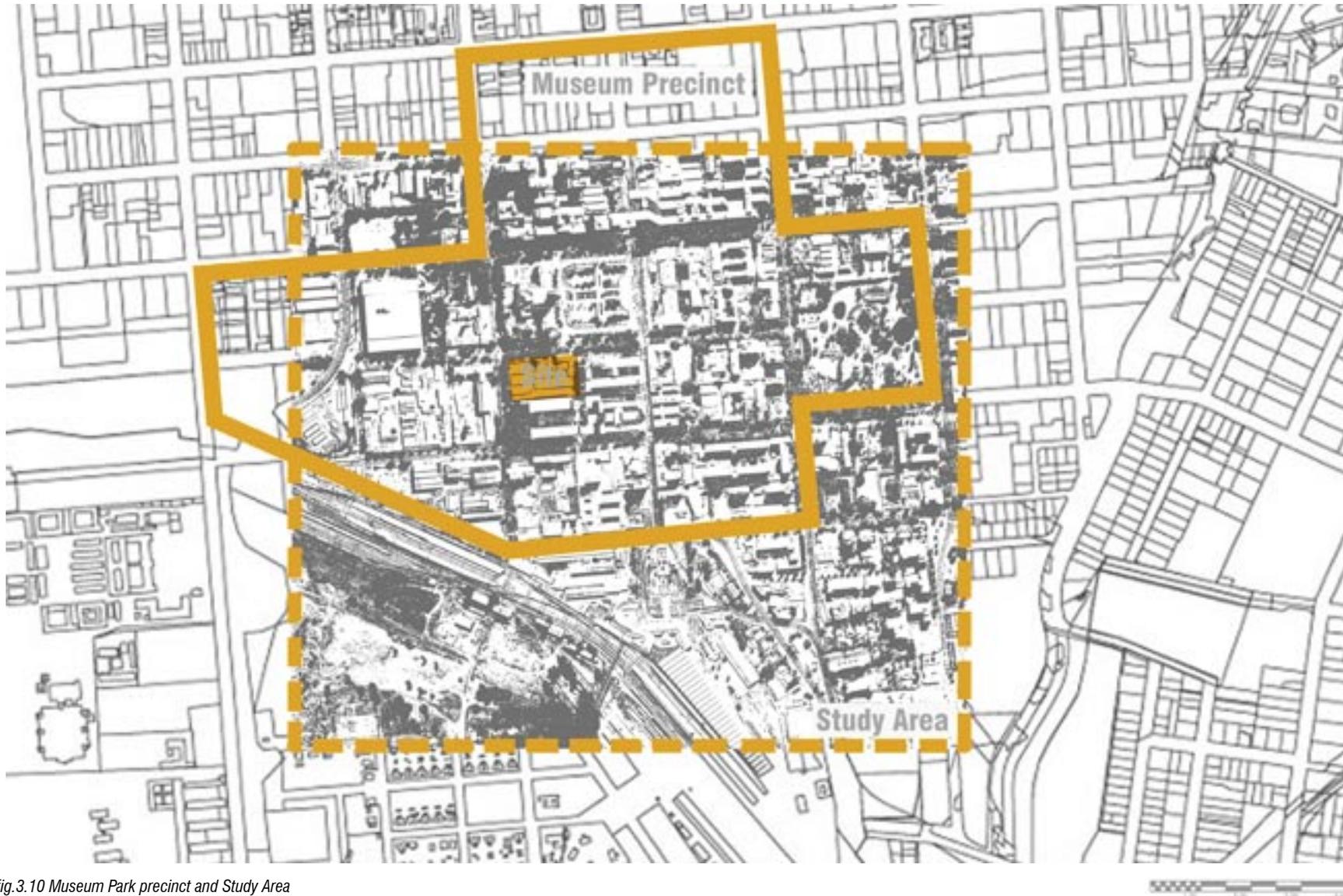


fig.3.10 Museum Park precinct and Study Area

Context

Present Museum Park Area

CURRENT MUSEUM PARK

The current Museum Park area was designed in 1999 by Holm Jordaan Architects. Attention was given to the upgrading of the sidewalks, especially along Minnaar Street, to promote a pedestrian feel and to connect the museums and centres. This was done by introducing paving patterns, seating, lighting and signage. Centres included in the heritage precinct are:

MELROSE HOUSE

The Peace Treaty of Vereeniging, which ended the Anglo-Boer War, was signed on these premises on 31 May 1902. The building now serves as a museum for the Victorian to Edwardian architecture. Courses, exhibitions and antique markets are held here. (Museum Park Brochure)

BURGER'S PARK

The park is opposite Melrose House and has a restaurant located in the centre.

TRANSVAAL MUSEUM

The Transvaal Museum was built in 1913; the north and south wings were extended ten years ago by Holm Jordaan Architects.

The Natural History division displays the biodiversity of southern Africa, focussing on the evolution of mammals, reptiles and birds. Guides and courses are available as well as a specialist natural history bookshop.

The Geosciences Museum is also situated in the Transvaal Museum and houses a collection of rocks, minerals and fossils.

CITY HALL

The Pretoria City Hall was built in 1935 and designed by J. Lockwood Hall. The pediment was designed by Anton van Wouw and depicts the history of Pretoria.

AFRICAN WINDOW CULTURAL MUSEUM

The museum is dedicated to the heritage and culture of all South Africans. The museum also has conference facilities, exhibition space and a restaurant. (Museum Park Brochure)

INNER CITY ENVIRO CENTRE

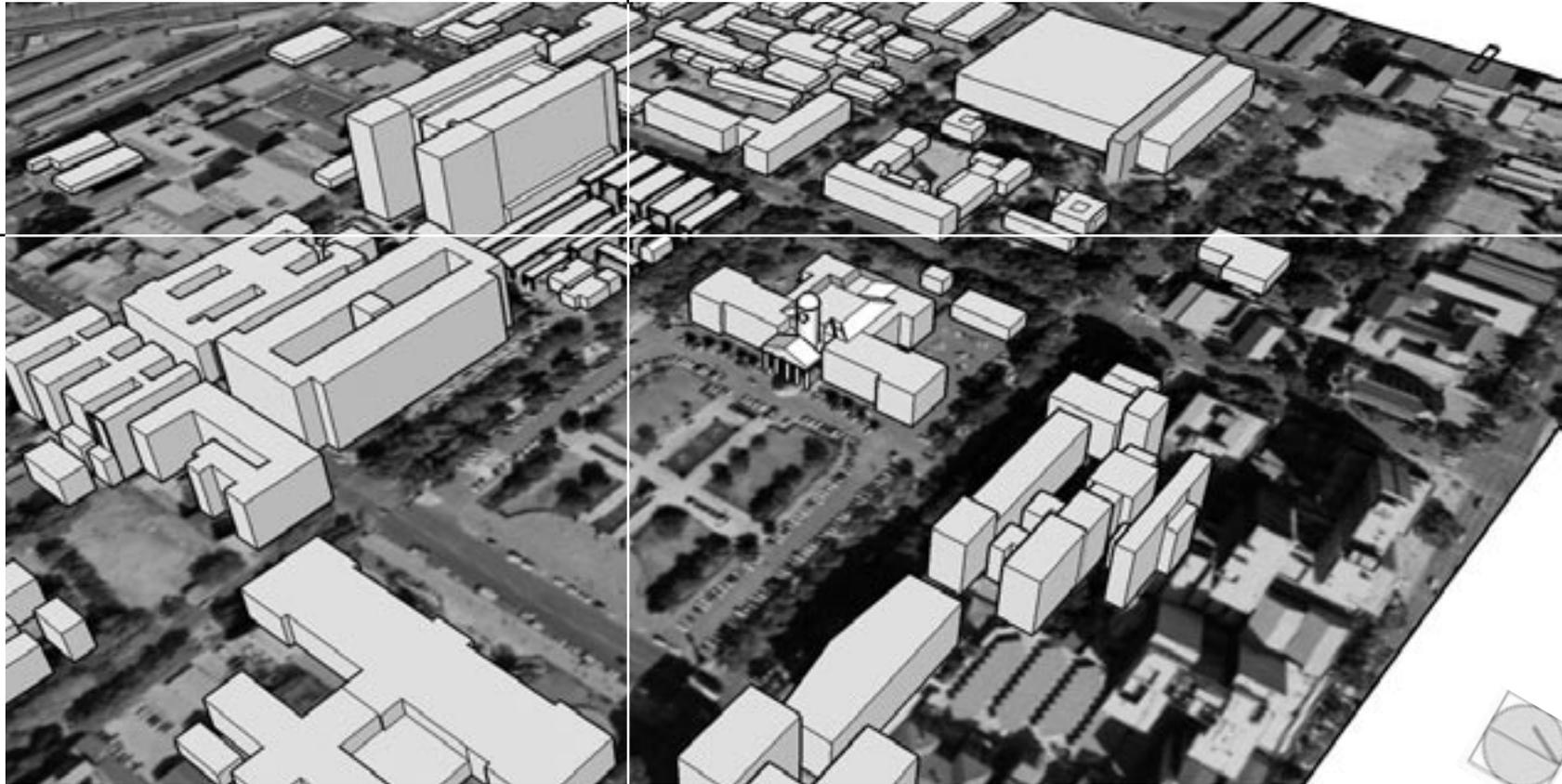
The centre promotes environmental awareness through workshops, courses and programmes.

MUSEUM OF SCIENCE AND TECHNOLOGY

An interactive museum where the discoveries in science and technology is explained to the visitor.

MUSEUM PARK TOURISM CENTRE

Apart from providing visitors with information and brochures on Pretoria, the centre also provides accommodation for visiting school groups.



3.11 Perspective: Study area





- 1. City Hall**
- 2. Pretorius Square**
- 3. Transvaal Museum**
- 4. Spoornet**
- 5. Department of Land Affairs**
- 6. Department of Home Affairs**
- 7. Old Fire Station (now Tourist Info)**
- 8. Tshwane Emergency Services**
- 9. Government Garage**
- 10. African Window Museum**
- 11. Dairy Mall**
- 12. Bosman Street Station**
- 13. Pretoria Station**
- 14. Market & Bus Stop**
- 15. Multi-use Area**
- 16. Post Office**
- 17. Land Bank**
- 18. Burger's Park**



30 >> *fig.3.12 Aerial photograph of Study Area*





fig.3.13 Buildings in Study Area

Context

ANALYSIS OF PRETORIA

An analysis process is undertaken, using the theory of field-dependence and field-independence. The first area to be analysed is the greater Tshwane Municipal area. After that, the study area is again analysed in terms of the theory. This was done to determine which types of spatial expression can be found and where they are located.

Looking at the city planning strategy for apartheid Pretoria during the 1960's, a field-dependent diagram can be identified. Each area focusses inward, onto itself and interaction between areas is discouraged.

After the 1994 elections and democracy, racial segregation was no longer enforced by law and integration slowly started taking place. The areas around the CBD show the most dynamic patterns in terms of spatial use due to interaction. In these areas a wider variety of cultures and nationalities are found. Different elements within the area (such as buildings, infrastructure and facilities) are linked to each other through interaction.

APARTHEID CITY DESIGN

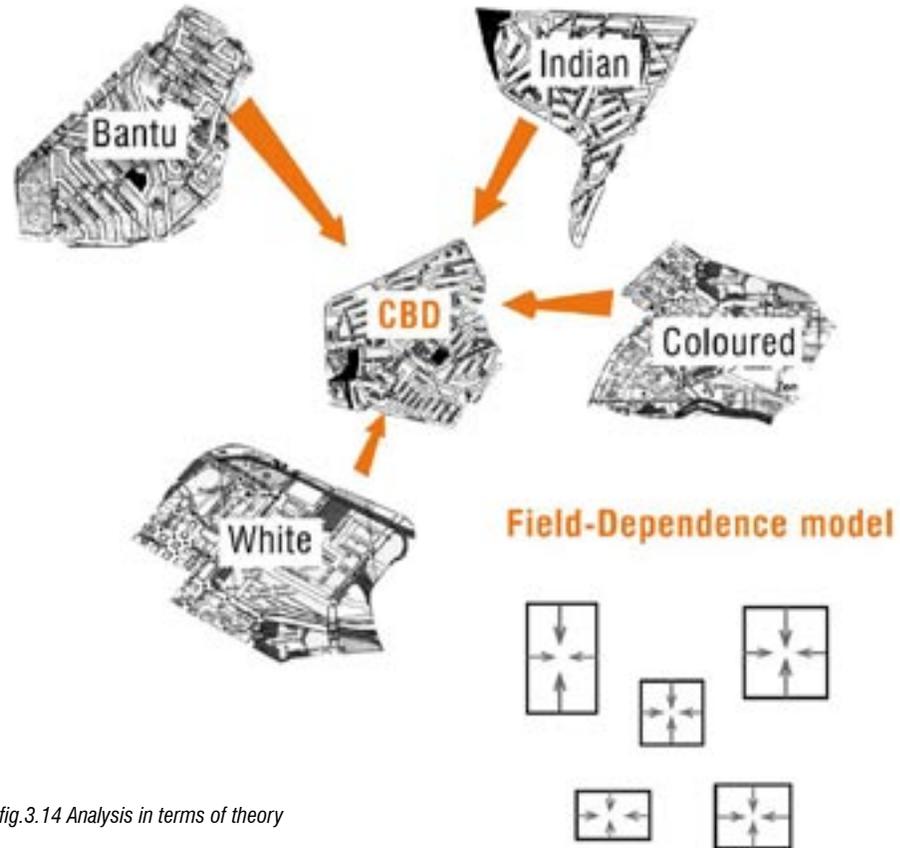


fig.3.14 Analysis in terms of theory

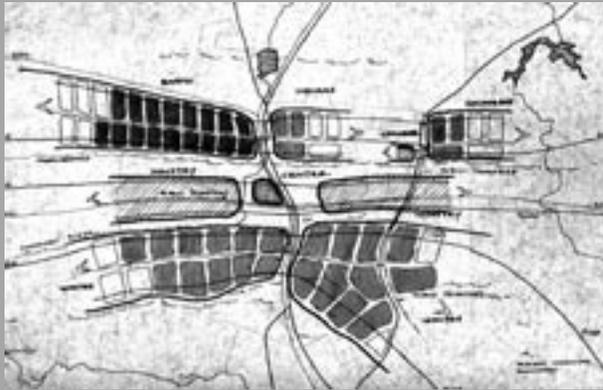


fig. 3.15 “A Sketch for an ideal city on the site of Pretoria” (Ball.B.W.B. 1968:125)

In his thesis, Brian Ball discusses the thinking behind city planning in the apartheid era. The thought pattern in the 1960's was that friction between racial groups could be avoided by designing separate residential areas and not to allow one race to travel through another race's area. This caused a strong division between different parts of the city by transport links. Today, even after the Group Areas Act was abolished, the road network still makes integration difficult.

POST-APARTHEID CITY DESIGN

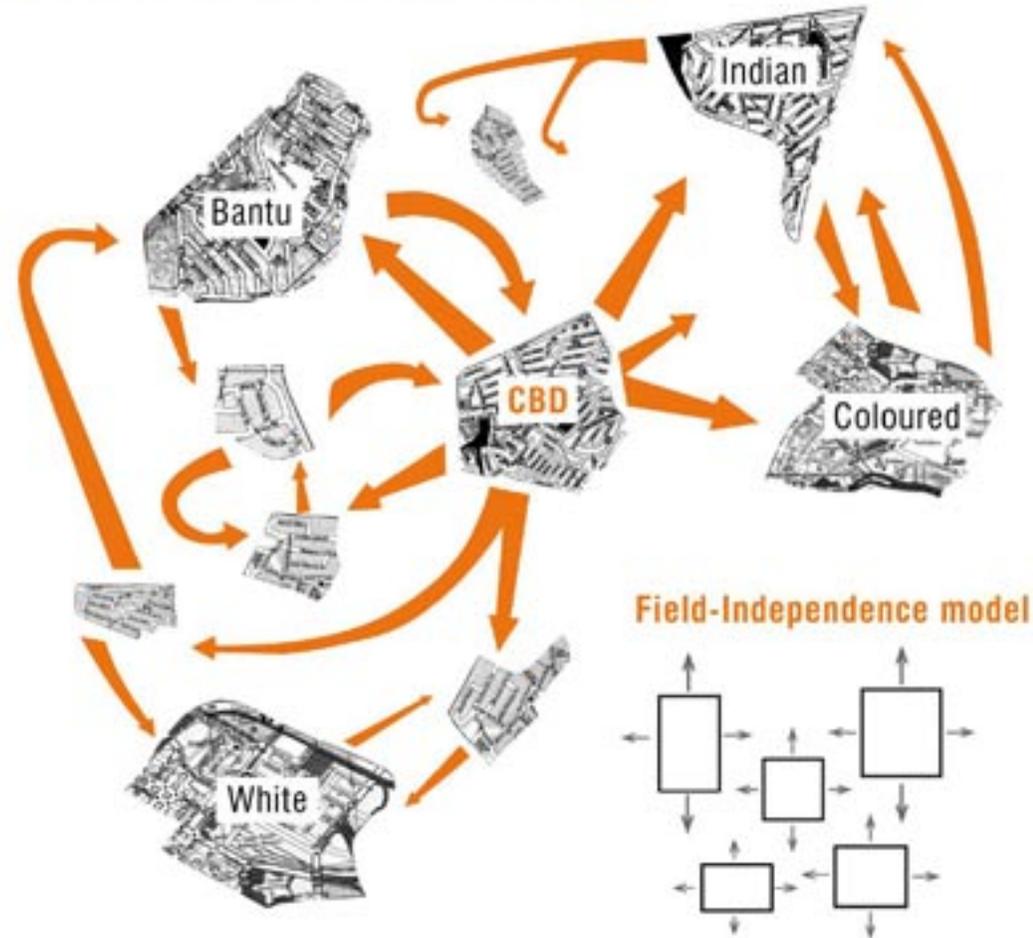


fig.3.16 Analysis in terms of theory



Context

ANALYSIS OF STUDY AREA

The proposed site, investigated in this study, falls within the CBD of Pretoria, but is located on its south-western border. The site and its surroundings are analysed in terms of the field-dependence/independence diagrams. This also serves as a test for the findings in the analysis of the greater Tshwane municipal area.

The results show that the inner part of the CBD still functions mostly fielddependently whilst the borders are showing field-independent activity. One can say that the new field-independent tendencies are slowly 'creeping' into the CBD. Currently the buildings of the CBD rarely accommodate new dynamic and therefore hamper the tendency to develop. This is especially evident in the institutional and governmental buildings. If the CBD is to reflect the needs of its users, this problem has to be addressed.

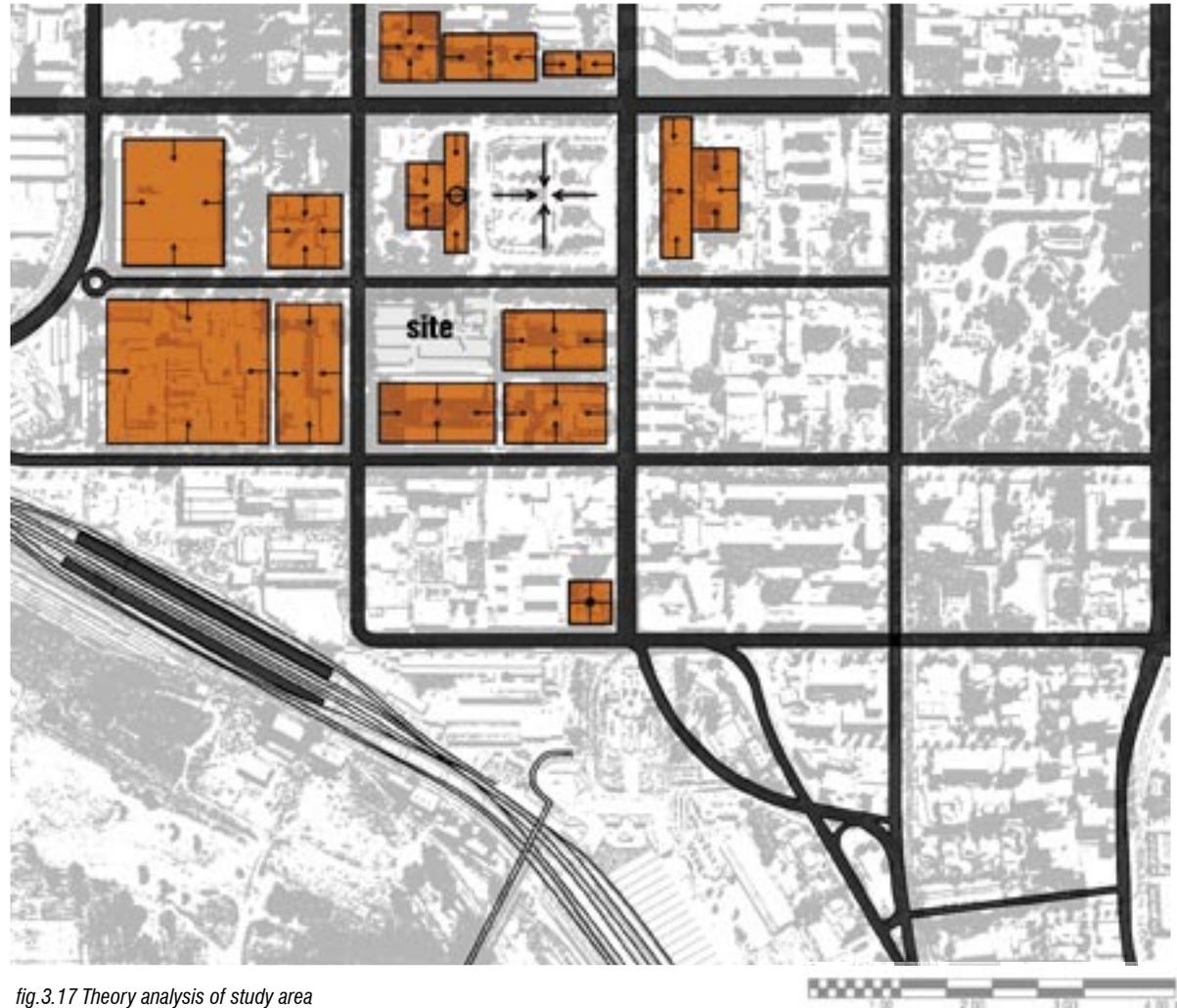


fig.3.17 Theory analysis of study area

CHARACTERISTICS OF A FIELD-DEPENDENT URBAN AREA:

- Buildings and spaces are not adaptable to different programmes and users.
- Only one or two functions are housed within the building.
- Low density of users and the buildings are not used to an optimum.
- Ill defined
- Do not attract new users

CHARACTERISTICS OF A FIELD-INDEPENDENT URBAN AREA

- Buildings and spaces are able to adapt to a variety of programmes and users over time.
- Multi-functional buildings. Many functions are found in one area.
- High density
- Well defined, character.
- Attracts a wide range of users at all times of day.

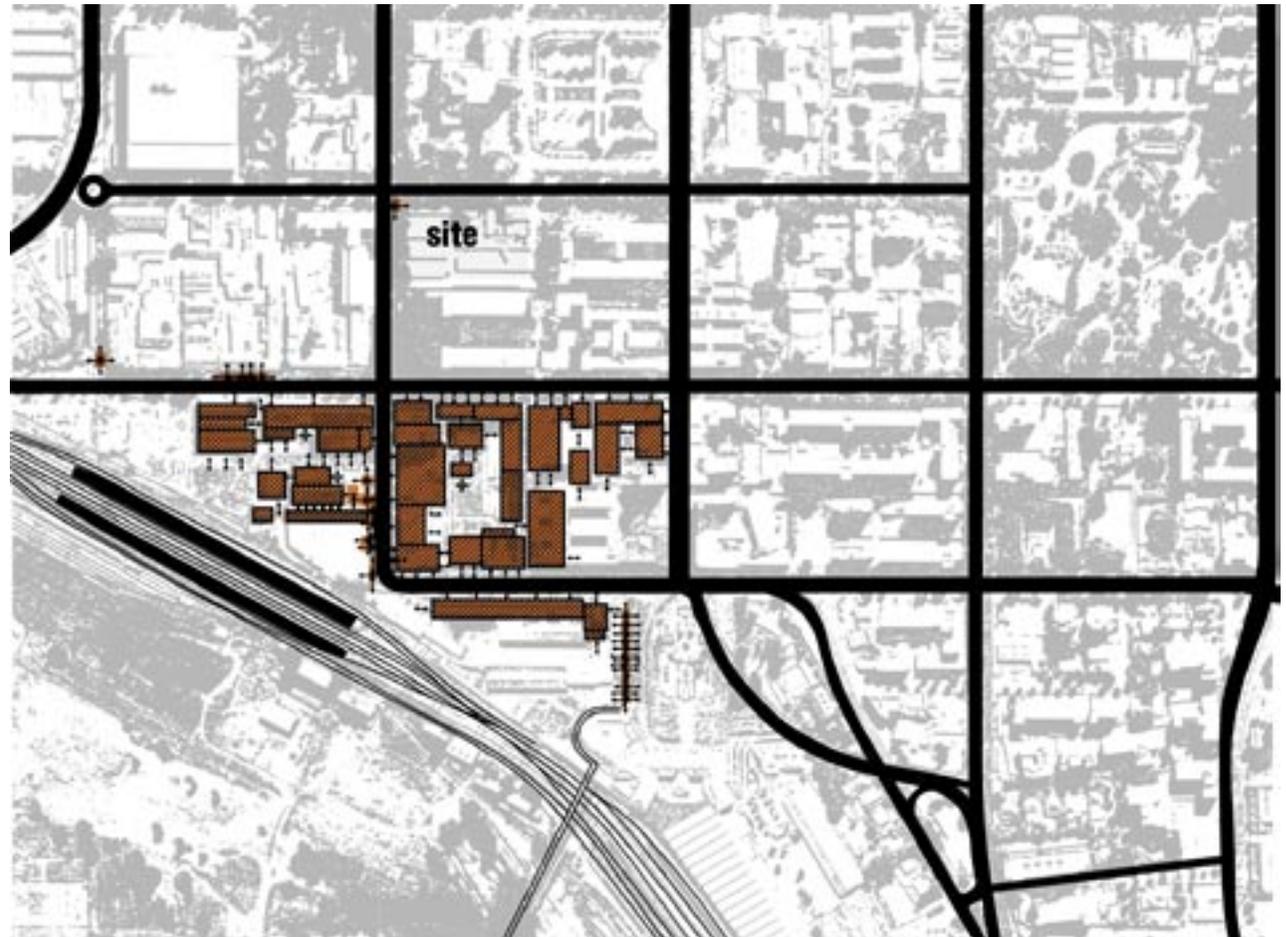


fig.3.18 Theory analysis of study area



Context: Site Analysis



*3.18 Model of field-dependent/independent site analysis.
White buildings = field-dependent
See-through buildings = field-independent*



The following analytical map shows the adaptive qualities of the buildings in the study area

Areas identified as constants are those that show little or no change over its lifespan. As indicated earlier, these occur towards the centre of the CBD.

Areas of adaptation and transformation are those showing a successful change of use or users during its lifespan. These are mostly found on the outskirts of the CBD but are slowly moving towards the centre. When designing in this area, the need for buildings that can adapt has to be considered. The sites open for development are ideal in answering the need of the area. Any interventions on these sites should be adaptable and should comply to principles of cross-programming, space-independence and flow of dialogue.

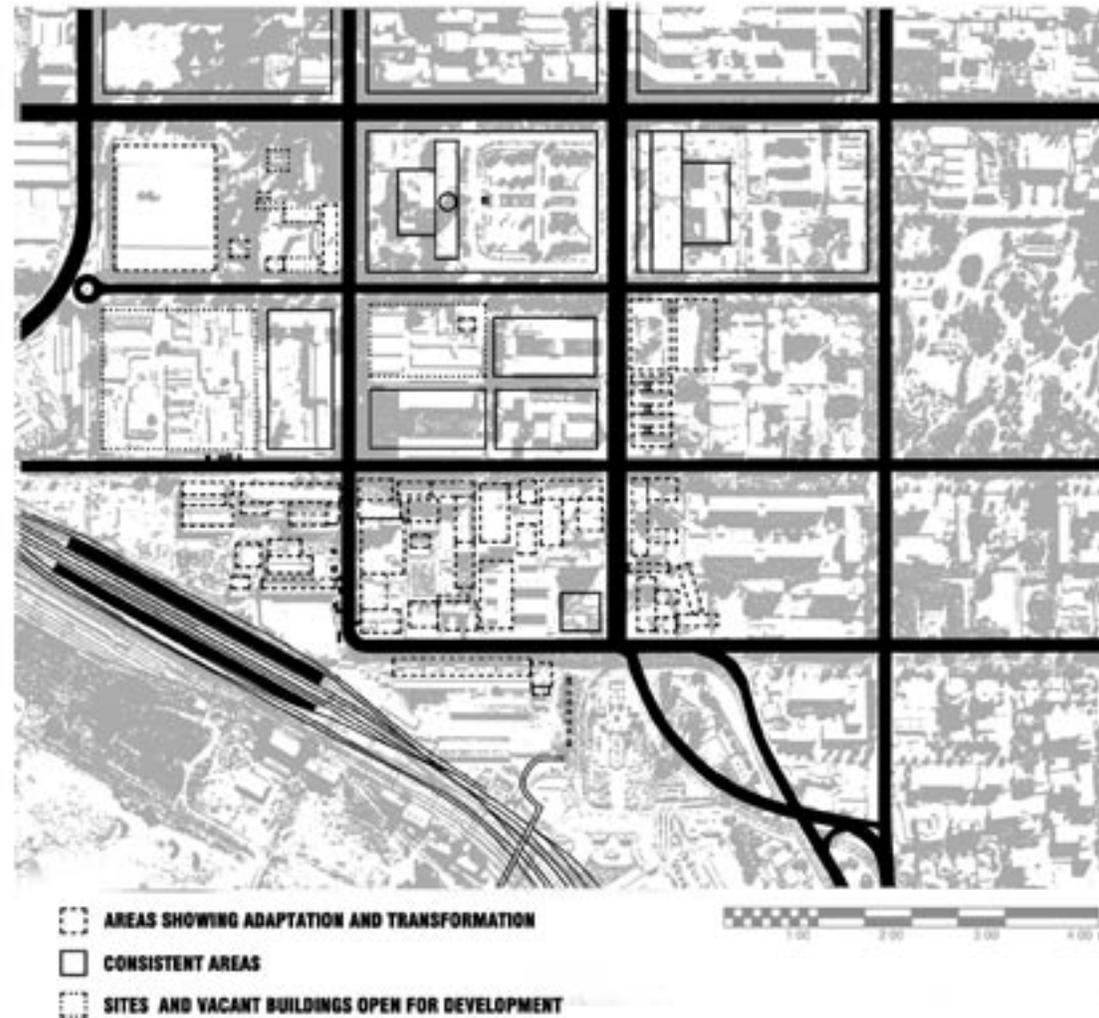


fig.3.19 Adaptive buildings in study area

Context

Patterns of Consistency: Layers of History



fig.3.20 SANAF Aerial Photograph of Pretoria in early 1900's (exact date



fig.3.21 SANAF Aerial Photograph of Pretoria in the 1930's (exact date unknown)

Context Study

Patterns of Consistency: Layers of History



fig.3.22 Location of Christina Street

The area on which the site is situated was originally part of the farm Elandspoor. The owners of the farm's daughter married Phillip Carel Minnaar, after whom the street was named.

The aerial photo's (*fig.3.20&3.21*), taken in the early 1900's and 1930's (exact dates unknown), show the site to be used for residential buildings. One can clearly distinguish a lane flanked by houses. During an interview with Anton Jansen, Chief Executive Officer of the Tshwane Building Heritage Association on 24 May 2006, it was found that these buildings were erected in 1899 to serve as boarding rooms. In 1913 they were described as the Eloff Cottages. Existing Building 1 (*fig.3.23*) can be assumed to be the last remaining cottage.

Christina Street no longer runs from Scheiding Street through to Minnaar Street, but is fenced off at Jacob Mare Street by the Department of Home Affairs. This eliminates an important link between Pretoria Station and Pretorius Square. The design therefore proposes to open Christina Street for pedestrian use.



fig.3.23 Existing Building 1: Residential building, currently a security office



fig.3.24 Existing Building 2: Old railway building, currently vacant

Context

Patterns of Consistency: Layers of History

Existing Building 1: Cottage

The heritage value of a building is determined by how well it represents the architecture of its time. Due to the alterations to the cottage this value has diminished.

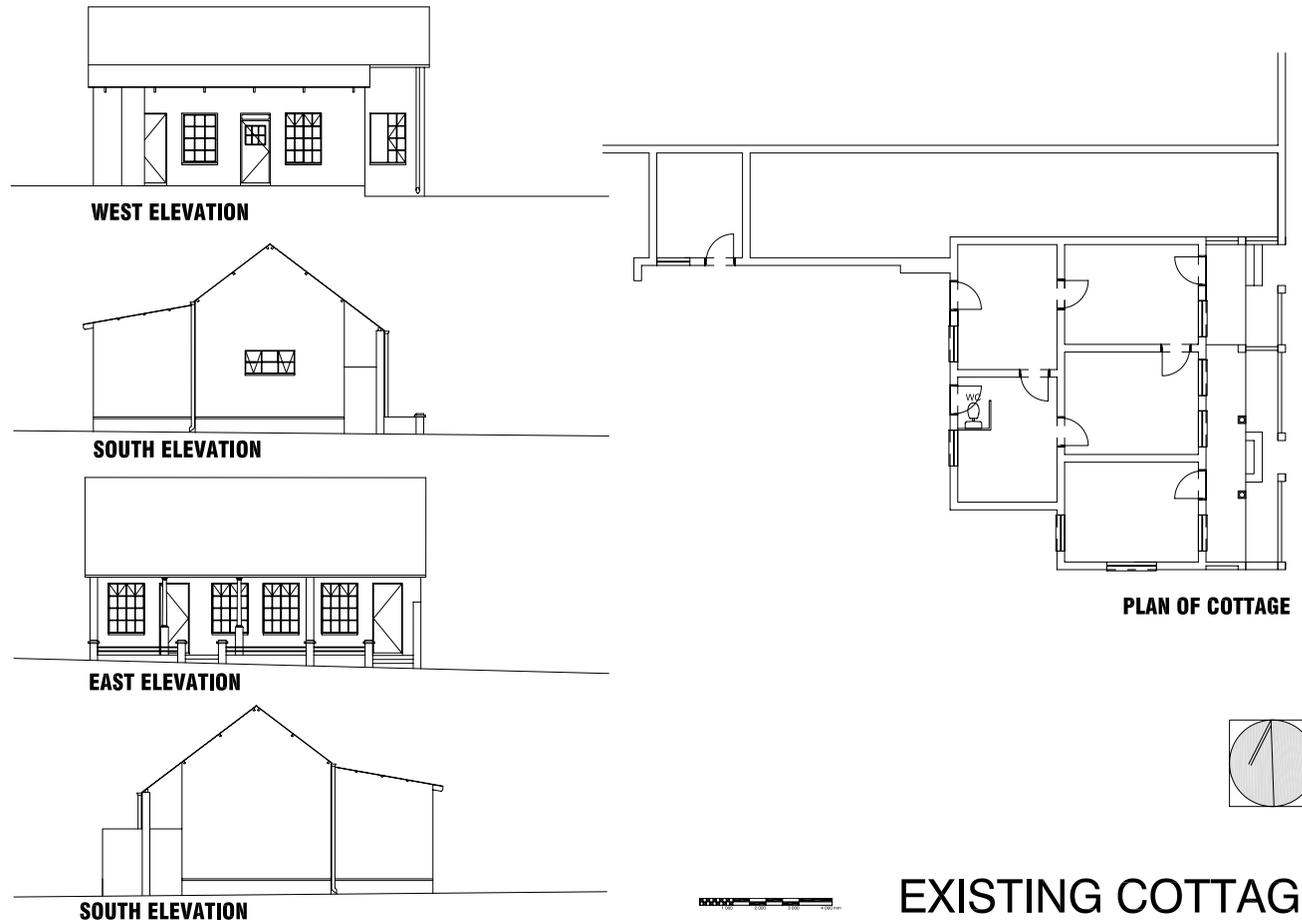
The significance of the cottage now lies in the function it used to house, and its location on Christina Street.

The design proposes that the cottage gets demolished to 450 mm above ground level. These walls will be used as outside seating for the adjacent kiosk or as a picnic area. In this way the 'hospitality' function of the building is continued and its location on Christina Street is remembered.

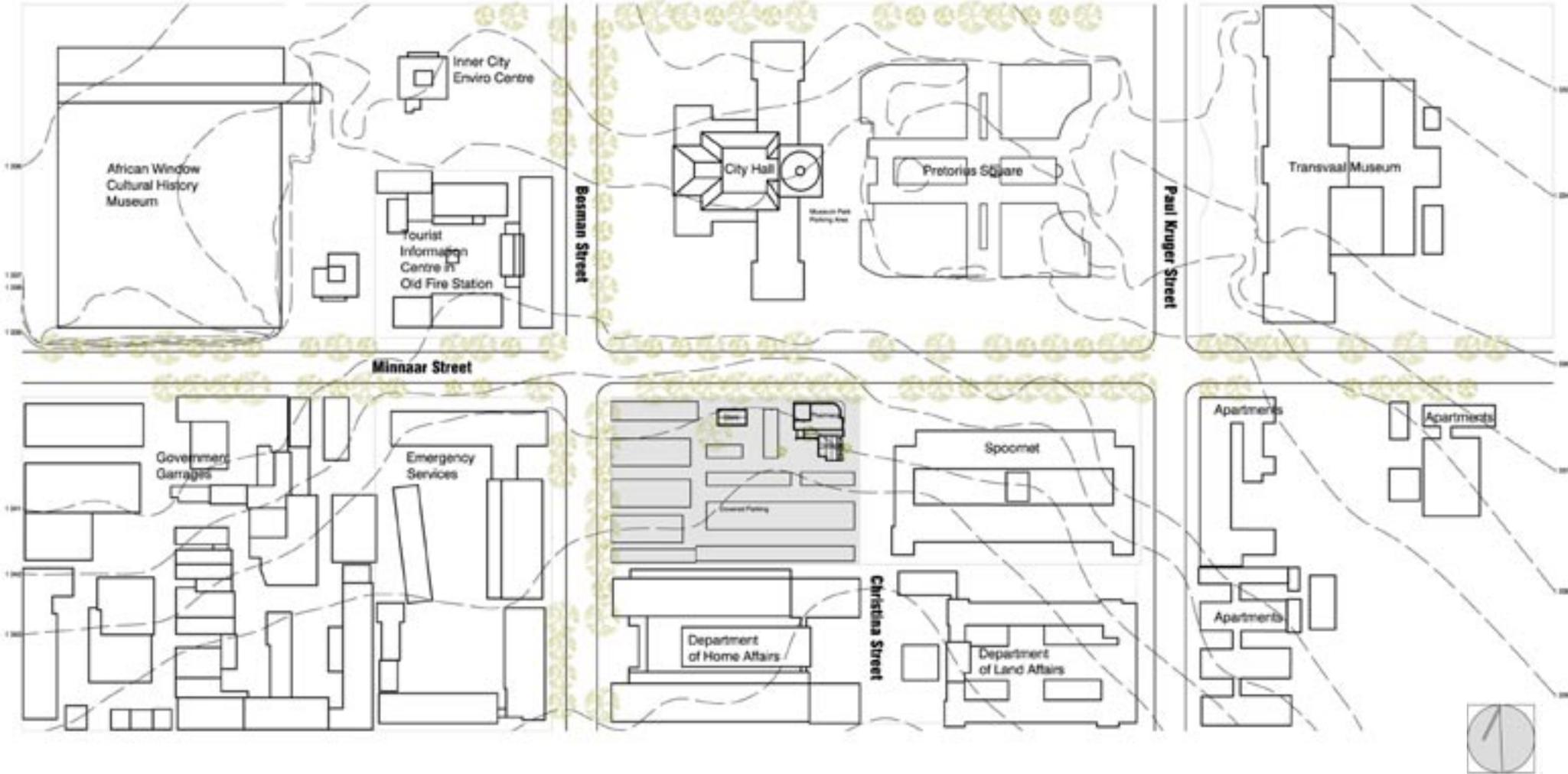
Neither building, nor any part of a building older than sixty years may be altered or demolished without a permit from the South African Heritage Resources Act (SAHRA). To apply for this, a report has to be handed in to SAHRA including full documentation of the building. This was done by taking photographs and measurements from which a set of measured drawings were produced.

Existing Building 2: Railway Building

This 1920's art deco building is owned by NZASM. It was used as a Pharmacy until 23 April 2006; since then it has been vacant. The design proposes to demolish part of this building but to keep the core and convert it into a restaurant or kiosk. This is a significant location on the site as it has a visual relationship to Pretorius Square.



Context



EXISTING SITE PLAN



Public Open Space



NAME	LOCATION	DISTANCE FROM SITE
Pretorius Square	Paul Kruger Street	25 m
Burgers Park	Andries Street	390 m
Station Square	Scheiding Street	550 m
Berea Park	Nelson Mandela Boulevard	1.2 km

Education



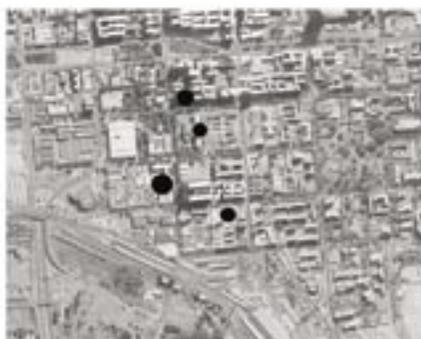
NAME	LOCATION	DISTANCE FROM SITE
Ed-U-College Secondary School	Jacob Mare Street	150 m
Loreta Convent	Visagie Street	350 m
Citicol Secondary School	Cnr Schoeman & Schubart Street	770 m
Fascinate College Primary School	Paul Kruger Street	420 m
Vista University	Cnr Van der Walt & Skinner Street	1.3 km

Retail



NAME	LOCATION	DISTANCE FROM SITE
Dairy Mall	Cnr Jacob Mare & Bosman Street	150 m
Freedom Supermarket	Jacob Mare Street	200 m
Informal Trade	Along Bosman and Scheiding Streets	150 – 540 m
Small trade and fast food outlets	Along Paul Kruger Street	230m – 1 km
Filling Station	Cnr Visagie & Bosman Street	320 m
Berea Shopping Centre	Railway Street	1.15 km

Municipal Services



NAME	LOCATION	DISTANCE FROM SITE
Fire Station	Bosman Street	30 m
Metro Police	Visagie Street	180 m
Police Station	Jacob Mare Street	240 m
Municipal Office	In City Hall	90 m

Transport



NAME	LOCATION	DISTANCE FROM SITE
Pretoria Station	Scheiding Street	720 m
Bosman Street Station	Bosman Street	210 m
Minibus Taxi Rank	Cnr Jacob Mare and Bosman Street	180 m
Taxi Pick-up Point	In front of Pretoria Station	700 m
Future Gautrain Station	Railway Street	770 m
Parking Areas	Scheiding Street, Pretoria Station & Pretorius Square	20 - 760 m
Inter City Bus Stops	Scheiding & Railway Street	670 - 760 m

Museums & Historical



NAME	LOCATION	DISTANCE FROM SITE
City Hall	Paul Kruger Street	90 m
Transvaal Museum	Paul Kruger Street	230 m
Tourist Info & Old Fire Station Museum	Cnr Minnaar & Bosman Street	50 m
African Window Cultural Museum	Visagie Street	330 m
Museum for Science & Technology	Skinner Street	530 m
Melrose House	Jacob Mare Street	620 m
Barton Keep	Jacob Mare Street	350 m

Character of Surrounding Area

Lighting

Apart from the existing buildings, there is no additional lighting on the site. On the northern side of Minnaar Street lamp poles are placed at approximately 5 meter distances apart. These are placed above seating units and were designed to give Minnaar Street a pedestrian friendly character, thus promoting it as a 'heritage boulevard'. Even with these lamp poles Minnaar Street is poorly lit at night. On the south side, where the site for this dissertation is situated, lighting needs to be designed in accordance with existing.



Seating

Benches are situated along the north side of Minnaar Street. These are mostly placed under deciduous Jacaranda trees (Jacaranda Mimosifolia) for shade in summer and sun in winter. The benches are well maintained. There is no seating on the south of Minnaar Street, where the site is situated.



Signage

'Museum Park' banners are placed along Minnaar Street. Municipal buildings, such as the Central Fire Station situated on the south western corner of Bosman and Minnaar Street, have the official 'City of Tshwane Metropolitan Municipality' signage boards. A mosaic plaque in front of the Tourist Information Centre show familiar images of Pretoria, including a Jacaranda tree in bloom.



Paving

Pedestrian walkways have been defined along Minnaar Street with the use of clay brick paving. This was done on both sides on Minnaar Street but the northern pavement is wider with a variation in brick colour creating a wave pattern. The paving is successful in creating a 'boulevard' feel along Minnaar Street.



fig.3.25-3.39

Character of Surrounding Area

Jacaranda trees (*Jacaranda Mimosifolia*)

The Jacaranda tree is a Category 3 invader species, which means that no new trees may be planted, but it is not compulsory to remove existing trees. (www.tshwane.gov.za/weeds.cfm) The Jacaranda is deciduous and bears purple flowers in late spring. There are large Jacarandas on both sides of Minnaar Street as well as on the site. Because they are a recognised symbol of Pretoria, care should be taken not to remove or harm them during construction.



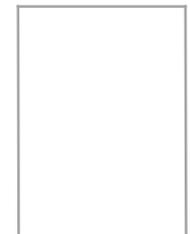
Fencing

For security reasons, the majority of properties are surrounded by walls or fencing. These are not coherent and often unsightly. Fencing eliminates the possibility of having semi-public and public areas around the buildings and does not allow for interaction between the public and the building. This should be addressed in the design.



Activities

Bosman -, Minnaar Street and Pretorius Square are utilised as a through route for commuters walking from Bosman Street Station to Paul Kruger Street. This route gets especially busy at 7 o'clock in the morning and at 5 in the afternoon. Some informal trade takes place along the route, selling food and snacks. Over weekends people relax and picnic in Pretorius Square. A group of boys from the surrounding neighbourhoods often gather with their skateboards on a Sunday.



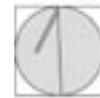
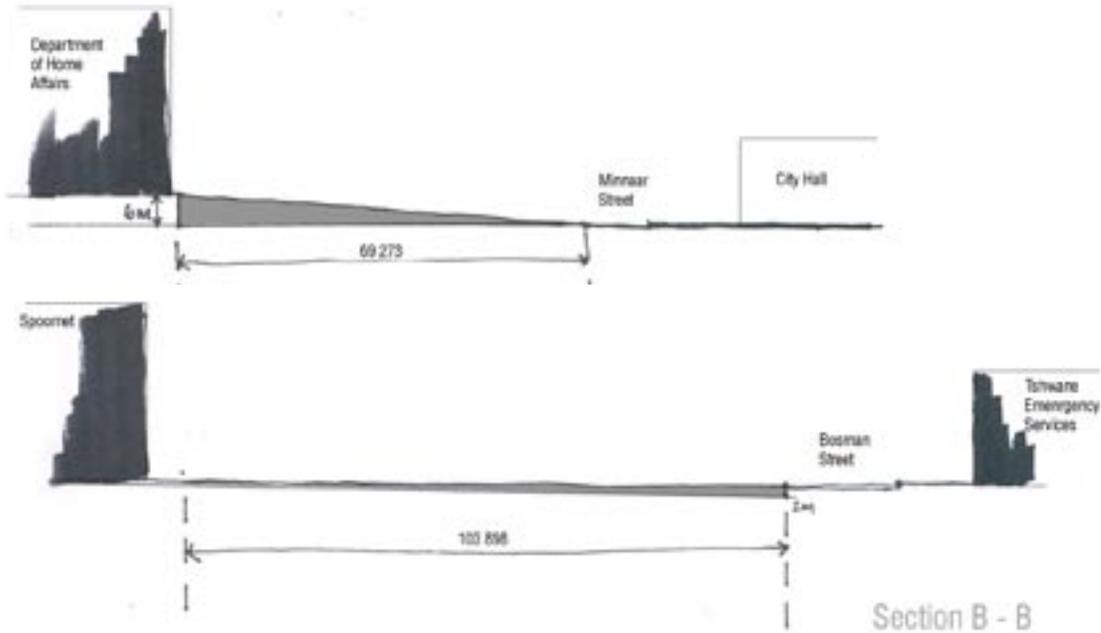
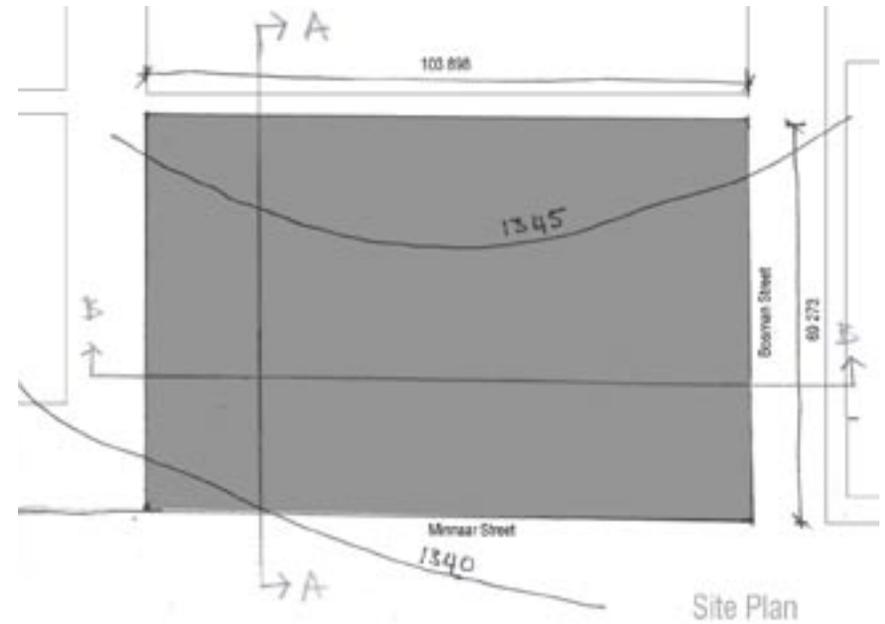
Site Analysis

Patterns of Consistency: Movement



fig.3.40 Public Footpaths

Erf Numbers: 885.886,887
Zoning: General Business
Size: 7197m²
Coverage: 80%: Building of max 5757.6 m² footprint.
Height restriction: 25m
Floor Space Ratio: 4
Cost of sites: R48 000 000



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Precedent Studies

Guy Debord

GUIDE PSYCHOGEOGRAPHIQUE DE PARIS

Architect: Guy Ernest Debord

Date: 1957

This precedent was informative in the site analysis phase.

The International Situationiste was a group of urbanists, architects and artists, established in 1956, and led by French architect, Guy Debord. Their aim was to explore new possibilities in urban planning and architecture. The project 'Guide Psychogeographique de Paris' was an analysis of the social interactions and movement patterns of Paris. This project is one of the first to acknowledge the development of a global society linked through movement and networks of communication. Their theory of 'drifting' stemmed from this project and explores the possibility of "making oneself available to the different attractions of the terrain, to new encounters, refers to contingent time, to space reconstructed by the imagination, by experience - always fragmented and subjective."

(Brayer, M (et al) 2004: 22 & 65)



fig.4.1

MOBIUS HOUSE, AMSTERDAM, THE NETHERLANDS
 Architects: UN Studio
 Date: 1996

Mobius House is chosen as a precedent because it investigates use patterns as a generator of design.

Architects, Ben van Berkel and Caroline Bos, use the mobius strip to accommodate various strands of movement into one building. The mobius strip consists of lines that never cross but surfaces that interact. (Domus 1999:41)

Spatially this can be interpreted as facilities being the points of interaction and not the paths. As with this precedent, the design process is generated by an analysis of the uses to be accommodated. The interaction between the uses is the primary focus of the design.

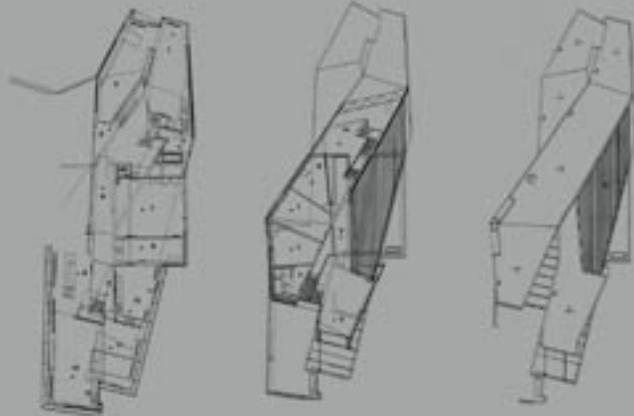


fig.4.2 Plans of Mobius House

- 1 bedroom
- 2 studio
- 3 circulation
- 4 bathroom
- 5 toilet
- 6 ramp
- 7 garage
- 8 storage
- 9 meeting room
- 10 kitchen
- 11 veranda
- 12 living room
- 13 fire place
- 14 open spece
- 15 roof garden



fig.4.4 Mobius Strip



fig. 4.5 Mobius House

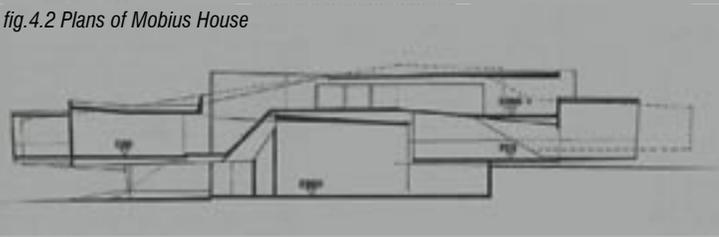


fig.4.3 Section

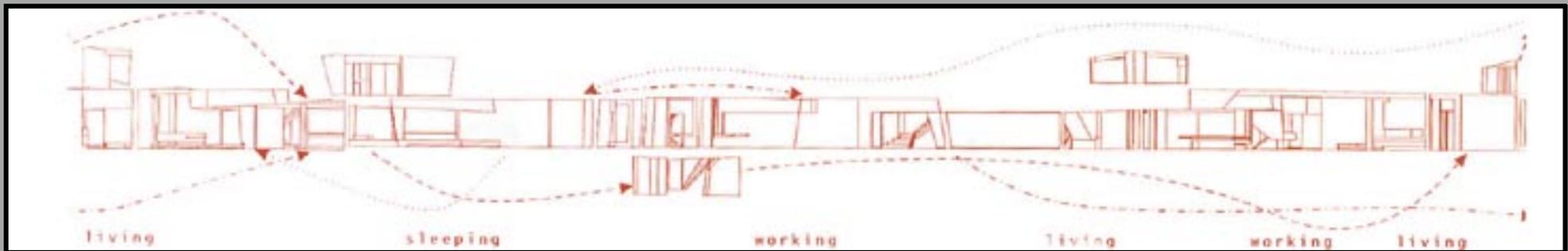


fig. 4.6 Movement Analysis

Precedent Studies

UN Studio

MERCEDES-BENZ MUSEUM, STUTTGARD, GERMANY

Architects: UN Studio

Date: 2006

The Mercedes-Benz Museum is another example of UN Studio's work with movement as design generator.

In this building, the architects use the double helix, of which lines never cross, as concept. The helix was interpreted into architecture by creating two ramps spiralling around each other, but never connecting. The exhibits are placed along the ramp and users spiral up with the one ramp, down with the other.

The double helix concept allows users to have two experiences of the same building, depending on which route they take. This means that two groups of users can exist independent of each other. (Architect 2006: 76)

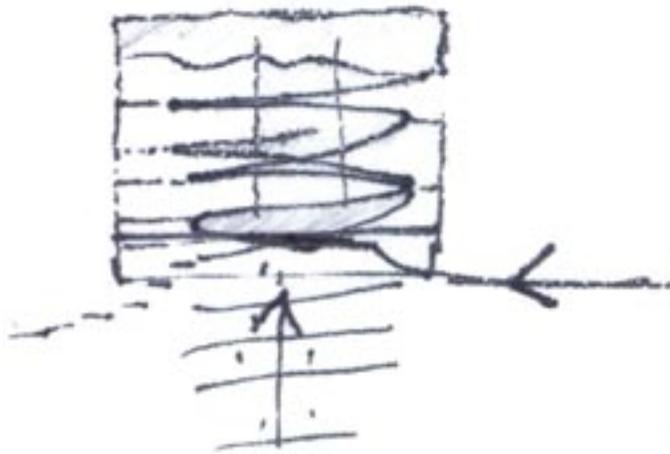


fig.4.8



fig.4.9

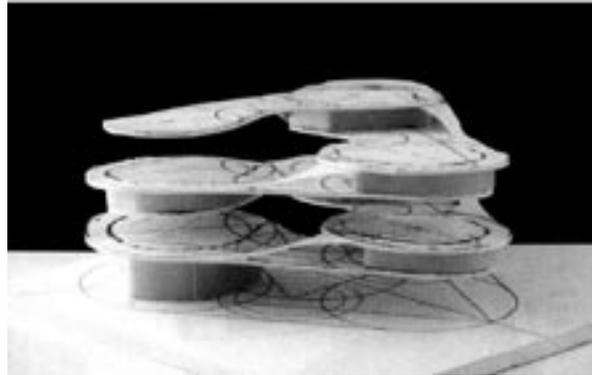


fig.4.10

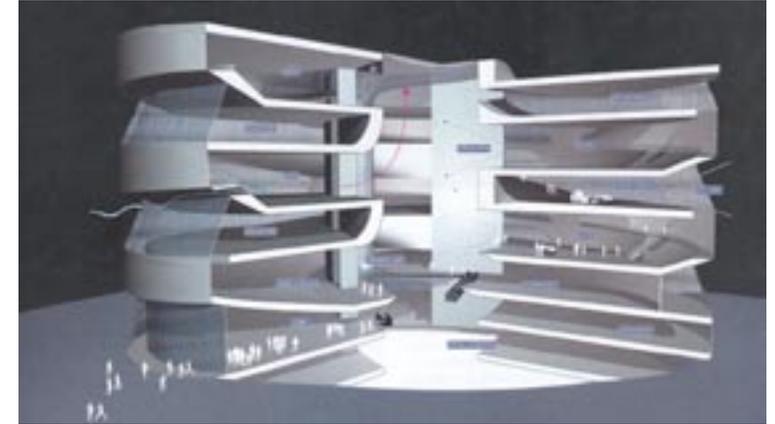


fig.4.11

INTERPRETATION

The routes in the precedent studies are designed not to cross. However, during the theory investigation process, it was established that, when lines cross, intensities are created at intersections. At the intensities an opportunity is given for dialogue between user groups and allows them to change direction from one route to another. A rhizome is formed, where all routes are connected to each other.

Precedent Studies

OMA Rem Koolhaas

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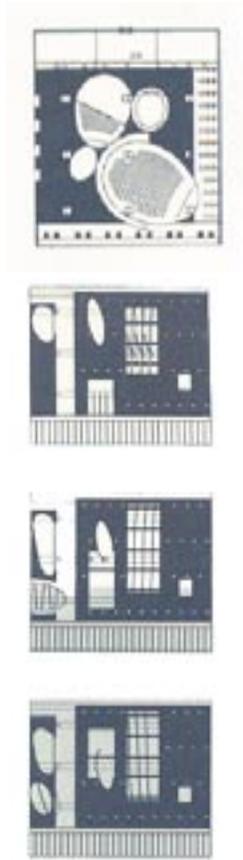


fig.4.12

BIBLIOTHEQUE DE FRANCE, PARIS
Architect: Rem Koolhaas
Date: 1989

This precedent was chosen to illustrate an interaction between the constant and transformative, as this is an objective derived from the theory investigation.

The project was done as a competition entry for the Paris Library. Dominique Perault won the competition and Koolhaas's design remains a theoretical exercise. The design explores the interaction between programmed and unprogrammed space. In the library, programme-specific facilities 'float' in an unprogrammed building. The library is housed in the unprogrammed areas whilst facilities such as auditoria and reading rooms are housed in the programme-specific pods. Levels are connected by ramps allowing the unprogrammed space to flow from one level to another without interruption. The building is covered with a translucent skin, making the pods visible and allowing the building to be read from outside.



fig.4.13

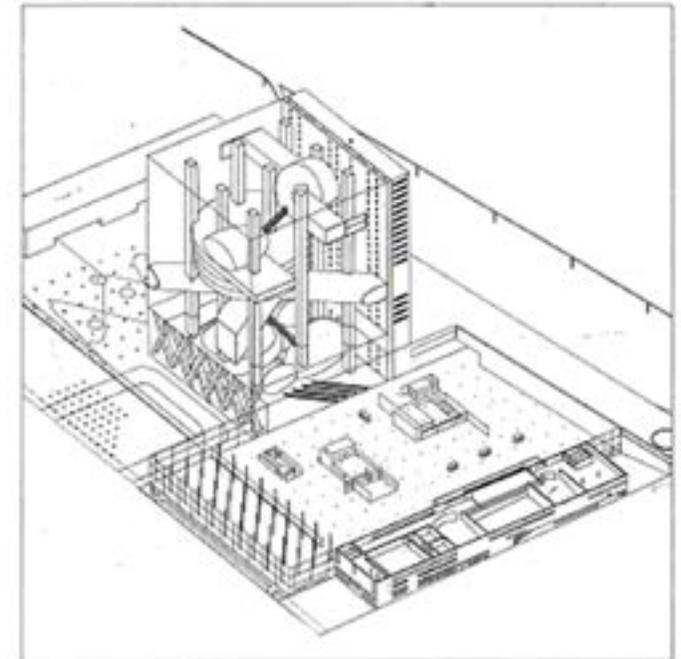
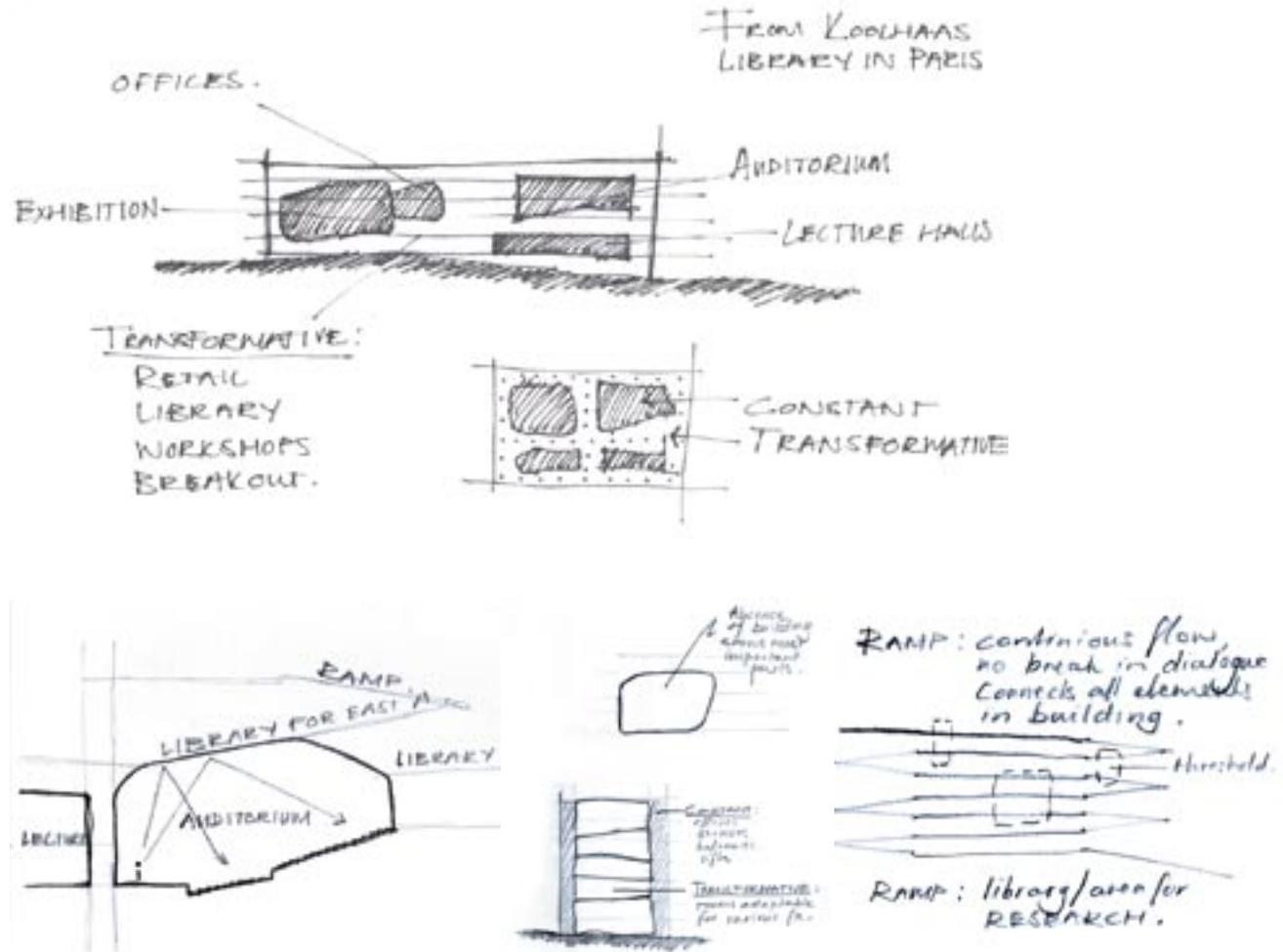


fig.4.14

ANALYSIS & INTERPRETATION

Koolhaas's programme specific facilities are the constant elements of the building. They give an identity to the building and houses functions with specific requirements. The unprogrammed space is the transformative element of the building. This space can adapt to the needs of the users. It houses the main function of the building, the library, in such a way that it promotes flow of users from one area to another. It is the transformative space that dictates the way in which the building functions and in turn, it is the users that dictate the way the transformate space is used. The connection between constant and transformative, where users cross paths, are the areas of interaction.

Analytical sketches of Koolhaas's Bibliotheque de France was done to establish the interaction between constans and transformative. These sketches were used to inform the concept design phase by placing them over the site and combining them with concepts derived from the site analysis process.



Precedent Studies

OMM DESIGN WORKSHOP

ELECTRIC LADYLAND OFFICES, KLOOF, DURBAN

Architect: OMM Design Workshop

Date: 2001

This project is chosen as a precedent study as it is transformable to the needs of the inhabitants. This is done by dividing the building into two parts: programme-specific and unprogrammed. The programme-specific half includes services and circulation, whilst the unprogrammed half allows for transformable office space that can adapt to the user's requirements. A suspended mezzanine floor can be retracted or removed, to create a double volume space.

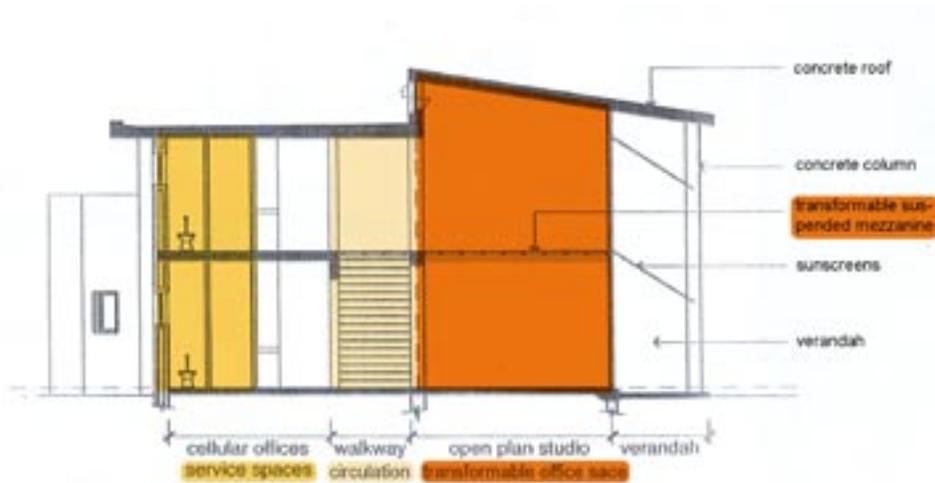


fig.4.16 TYPICAL SECTION



fig.4.17

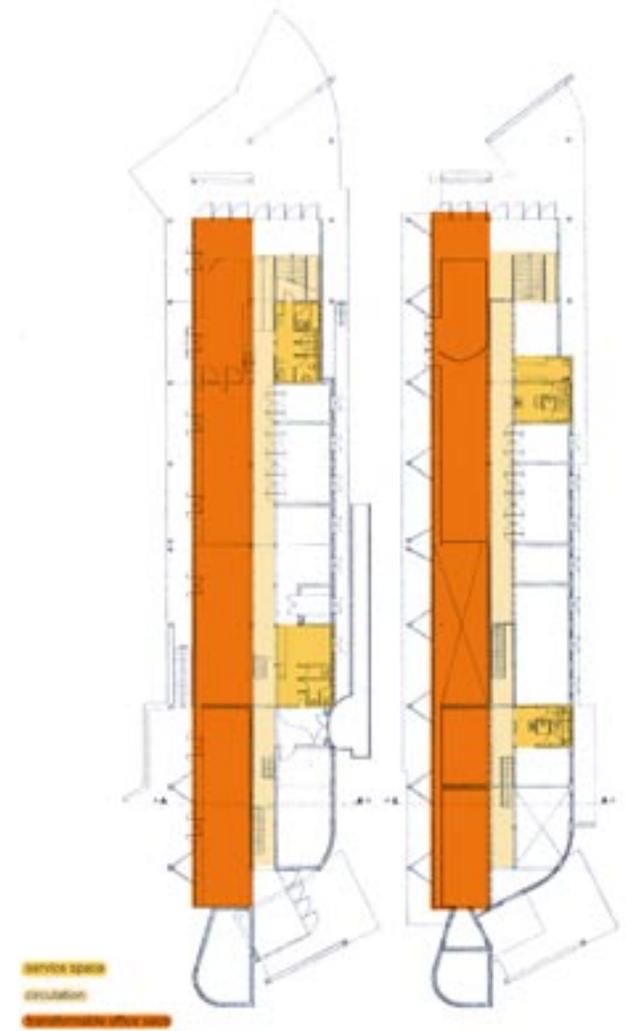


fig.4.18

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fig.4.19

These precedents were chosen as research for the children's library. Lessons from these projects include using bold colours to stimulate creativity, have activity areas where children can interact and be creative and to communicate educational material through images.

Projects from left to right: fig. 4.19.

CARTERHATCH INFANT & PARKSIDE FIRST SCHOOL, ENFIELD, LONDON

Architects: Stephen Davy Perter Smith

Date: 1998

Activity room for art classes.

(Allen, I. 1999:30-45)

fig. 4.20.

FAWOOD CHILDREN'S CENTRE, HARLESDON, LONDON

Architects: Alsop & Partners

Date: 2004

The building consists of an outer steel 'greenhouse' filled in with recycled shipping crates. This allows for interesting little nooks where reading groups can gather.

fig.4.22.

CORAM FAMILY CHILDREN'S CENTRE, LONDON

Architects: Monahan Blython

Date: 1999

Primary colours are used for children to navigate through the school. Each age group is assigned a colour and the class rooms and facilities are painted accordingly.

(Evans, B. 2005.24-33)



fig.4.20

Precedent Studies CHILDREN'S AREA



fig.4.21



fig.4.22

Precedent Studies

TEXT & ARCHITECTURE

The use of text in architecture was researched to find various ways in which the function of the building, an Institute for African Language Studies, can be expressed on its skin. This will make the building readable and will invite passers by to interact with the building.

From left to right:

NAGOYA UNIVERSITY NOYORI CONFERENCE HALL & MATERIALS SCIENCE LABORATORY, JAPAN

Architect: Yoshihiko Iida

Date: 2004

VEENMAN PRINTWORKS, EDE, NETHERLANDS

Architects: Neutelings Riedijk

Date: 1999

CULTURAL CENTRE, ADELAIDE

Architect: Ashton Raggat McDougall

Date: 2002

AKIBA-SCHECHTER JEWISH DAY SCHOOL, CHICAGO

Architect: John Ronan

Date: 2004



fig. 4.23 Graffiti as example of text on architecture



fig. 4.24



fig. 4.26



fig. 4.25



fig. 4.27



fig. 4.28



fig. 4.29

Precedent Studies

ANISH KAPOOR

University of Pretoria etd – Novellie, J (2007)

CLOUD GATE, CHICAGO

Artist: Anish Kapoor

Date: 2004-2005

London based artist, Anish Kapoor, is known for testing the experience of space through his work. The aim of his sculptures are to fuse physical and psychological space by creating interesting experiences for the viewer.

This precedent was used to explore perception of space and also to investigate the construction process of the pod.

Cloud Gate, a giant kidney-bean shaped pod, consisting of a hundred stainless steel panels, is highly reflective. This characteristic makes it interactive with the city and the users by reflecting their activities.

The pod was constructed by assembling prefabricated elements on site. First, the main structure, consisting of I-beam profiles, were erected. These are connected by steel pipes. The structure was covered with reflective stainless steel panels, each cut to a specific shape. (www.artoutline.com/anishkapoor/cloudgate)



fig. 4.30 & 4.31

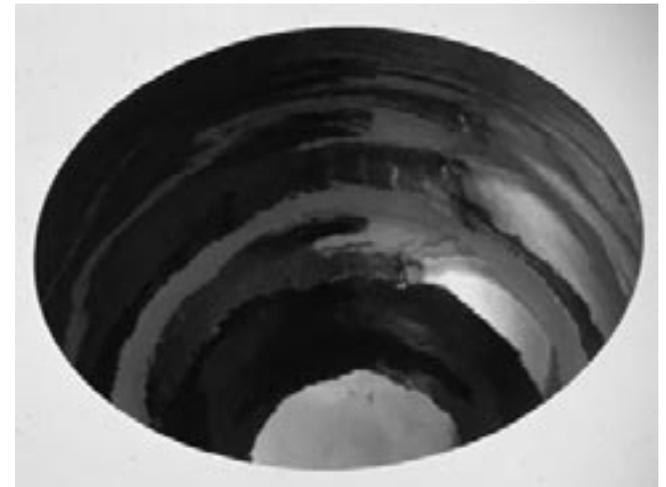




fig. 4.32 - 4.36 The construction process of Cloud Gate, Chicago

contents

University of Pretoria etd – Novellie, J (2007)

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INTRODUCTION

From the theory investigation and site analysis, objectives are formulated. These are used to set principles to guide the conceptual design phase. The objectives become the criteria for evaluating the success of the project.

Define the site

The site cannot be analysed in isolation from its surroundings, as these influence activities on the site. In order to propose a design for the site, it is important to define how the surroundings influence the site. It is also important to establish what effect the new proposal will have on the site.

Integration

The site was analysed in terms of field-dependence/independence. This investigation showed that different social and cultural groups use space differently. This resulted in the principle aim of this dissertation to design for the different social and cultural user groups.

Consistency

Areas of consistency provide a point of reference and give identity to the design.

Transformability

Adaptable elements interact with the constants. The trans-

formative areas are event-driven and depend on their use.

Interaction

Create areas that will facilitate various means of interaction, such as between the users and the city, the users and the building and different user groups with each other.

Schedule

In order to determine which spaces in the design will be constant, transformative or interactive, a schedule is drawn up and each space should be analysed in terms of requirements and use.



Design Investigation

Concept Exploration

Prof Schalk le Roux (Plekke en Geboue van Pretoria Volume II 1990:130) refers to Pretorius Square as ill-defined. He suggests that better spatial definition will elevate the square from the through-route it currently is to a vibrant gathering place.

Currently the layout of Pretorius Square is based on the Roman Forum model. This model, with its strong axis, is a symbol of dominance (F. Motsepe 2006), hierarchy and exclusion and does not allow for interaction between users. It can therefore be compared to the field dependent diagram.

Bernard Tschumi strives for architecture to be a 'combination of space, events and movement without any hierarchy.' (Tschumi 1997) This can be done by applying principles of field-independence as it is a model for inclusion and equality of users. Finian Motsepe (presentation 2006) on designing for Ubuntu, names 4 principles: order, hospitality, dignity, sharing. The field-independent diagram allows for these four principles and the break down of hierarchy.

PRETORIUS SQUARE

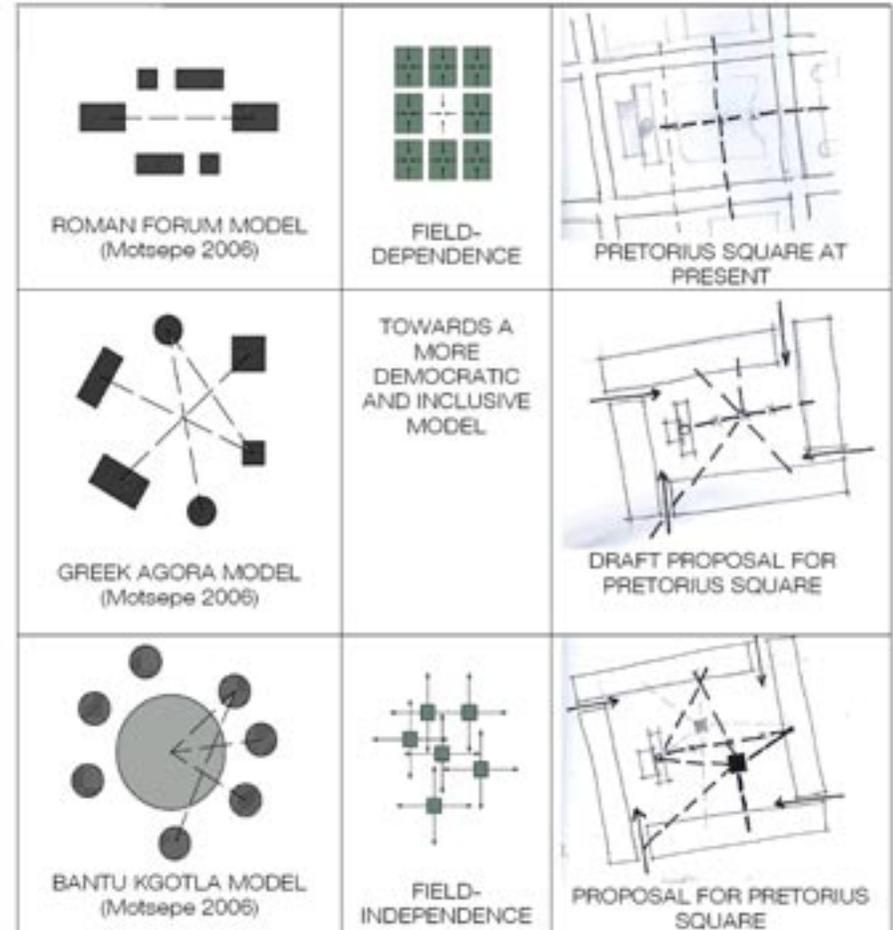


fig.5.1 Concept Design: Pretorius Square

Two methods of setting up a programme can be implemented. The first is based on schedule and the second is based on events, as suggested by Bernard Tschumi.

'PROGRAMME: A determined set of expected occurrences, a list of required utilities, often based on social behaviour, habit or custom. (Tschumi 2000:13)

EVENTS: An intermediate set of unexpected outcomes.' (Tschumi 2000:13)

When reading the schedule based programme, words such as 'auditorium' evoke predetermined concepts, while the description 'area for discussion' is far more open-ended and allows for exploration. Each identified area in the event-based programme will be further investigated. From here models will be built identifying their ideal characteristics. These can then be used to in the design process by adapting them to the context.

PROGRAMME BASED ON SCHEDULE:

- AUDITORIUM
- CLASS ROOMS
- OFFICES
- MEETING ROOMS
- BREAK OUT SPACES
- EXHIBITION SPACES
- LIBRARY
- BROADCASTING
- PUBLIC OPEN SPACE
- RETAIL

PROGRAMME BASED ON EVENTS:

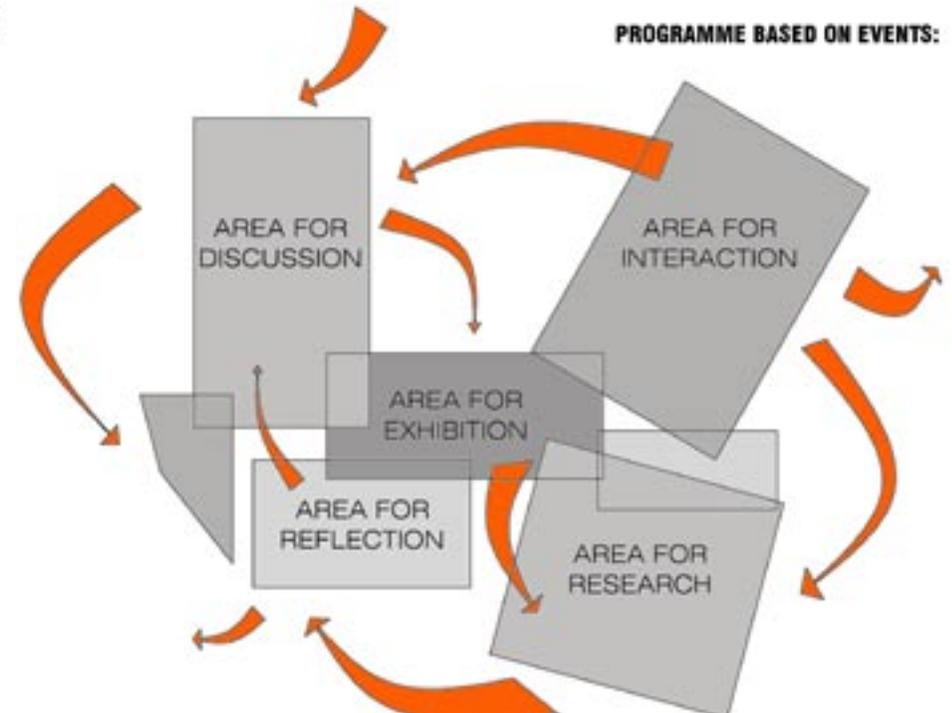


fig.5.2

Design Investigation

Exploration of Areas in the Programme

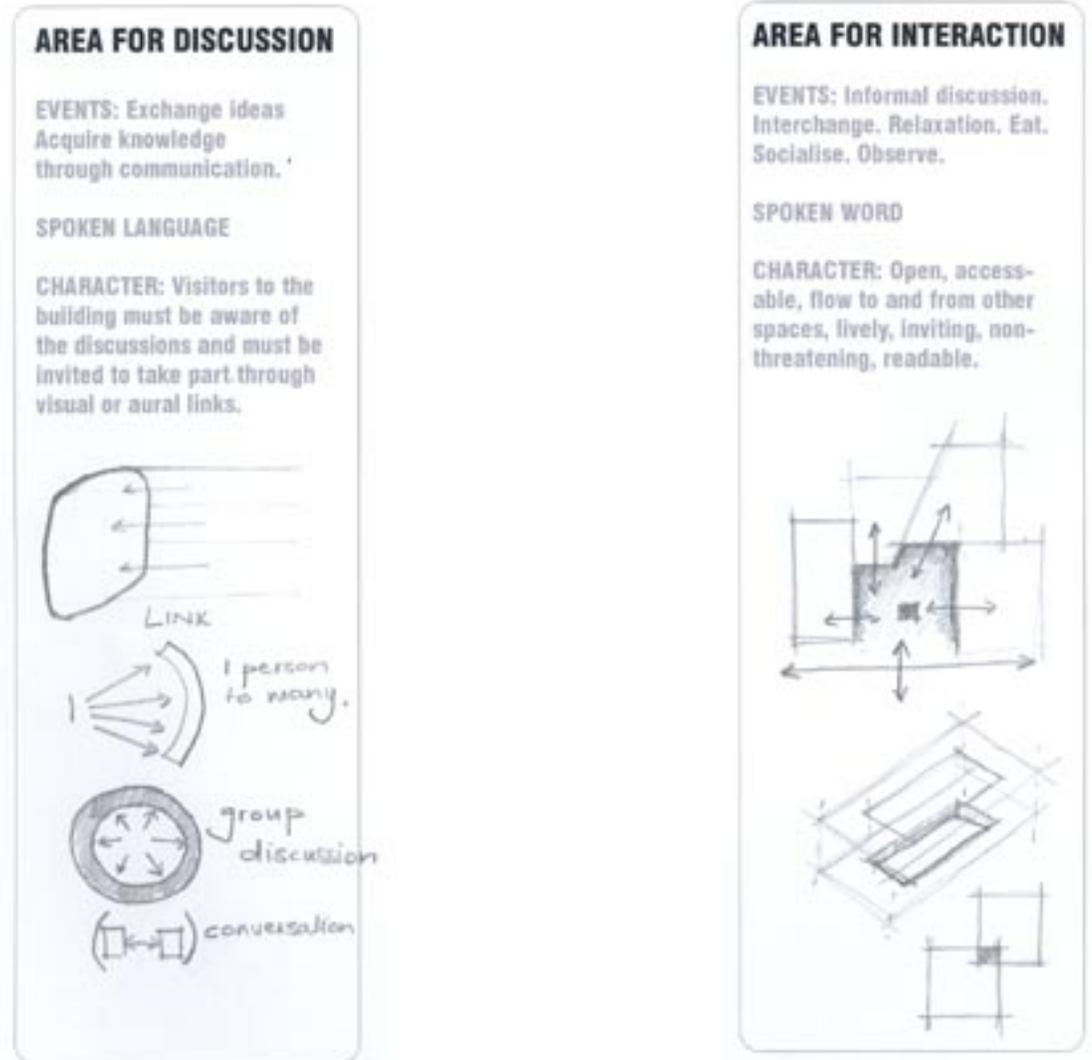


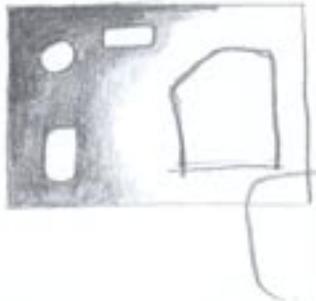
fig.5.3 - 5.7

AREA FOR REFLECTING

EVENTS: Write, study, compose, develop, test, examine, confirm, produce.

WRITTEN WORD

CHARACTER: Intimate, safe, private, solid.



AREA FOR RESEARCH

EVENTS: Collection of books, recordings, images, film and people with knowledge.

VARIOUS MEDIA

CHARACTER: Spine through building, used by all, connects different languages, connects users to other events in the building.



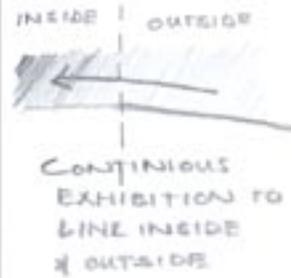
CONTINUOUS SPINE

AREA FOR EXHIBITION

EVENTS: To engage the public. Show work being done. Link inside and outside spaces.

VARIOUS MEDIA

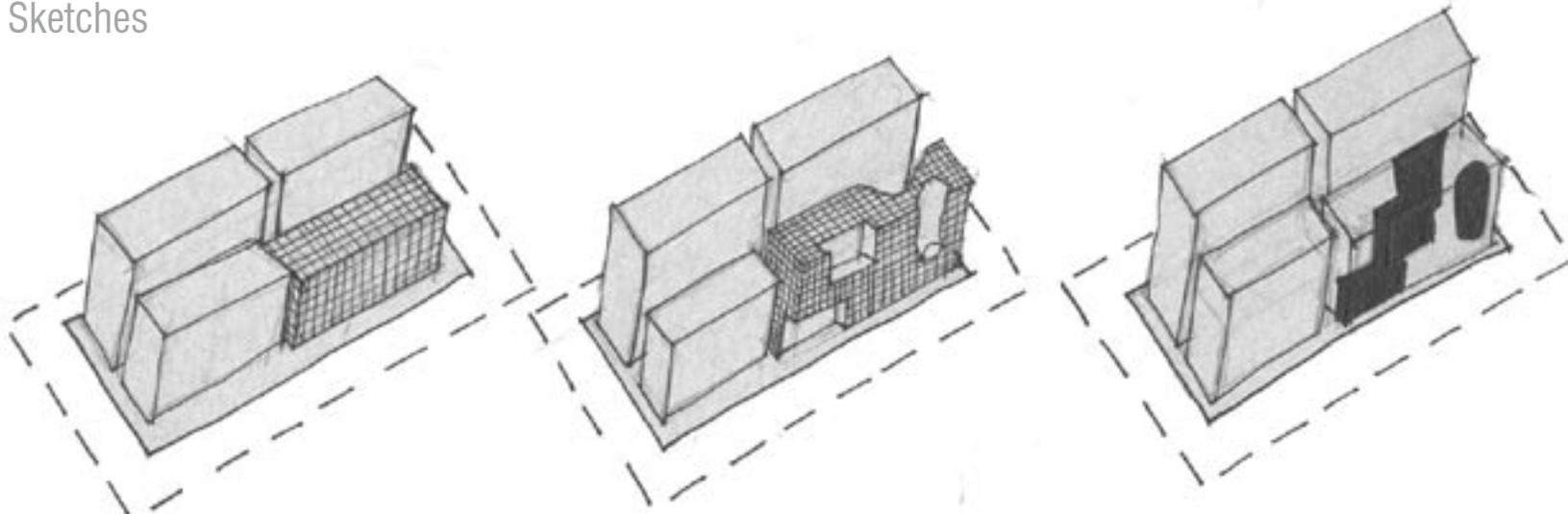
CHARACTER: Inviting, transforming, link users to events.



OVERLAPPING PATHS.

Design Investigation

Concept Sketches



THE SHELL *fig.5.8*

THE TRANSFORMATIVE

THE CONSTANT

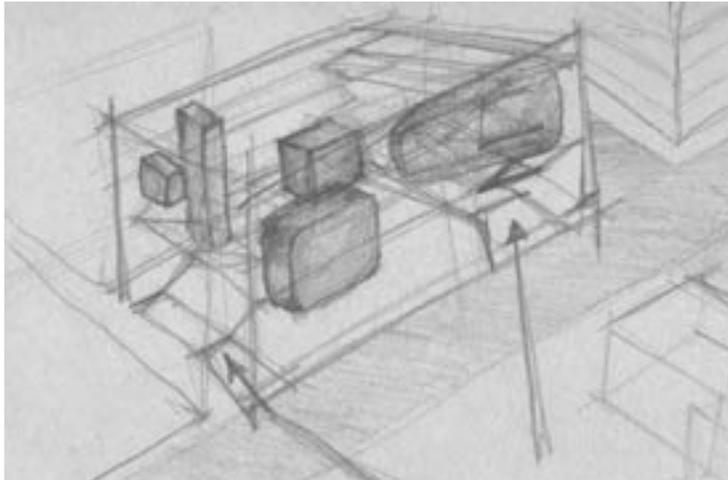


fig.5.9

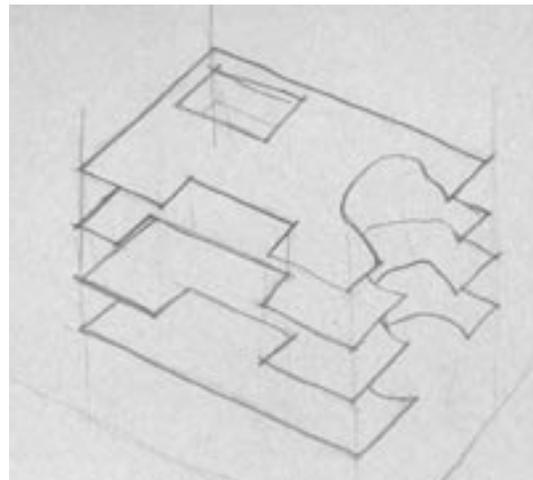


fig.5.10

CONCEPT

Programme specific pods within a transformative building.

CONSTANT

Programme driven

TRANSFORMATIVE

Event driven

Design Investigation

Concept Exploration

These are the first concept sketches experimenting with the theoretical objectives.

In the first exercise (fig 5.8 - 5.10), the building is proposed as a shell, divided into constants and transformatives. The constants are illustrated as pods, floating inside the building. the rest of the building, a grid system, houses the transformative elements and can adapt to the needs of the users.

The next group of concept sketches (fig.5.11 - 5.13) starts investigating the concept in terms of site and requirements. A decision was made to pull the pods out of the building, thus having the constants housed separately from the transformative part of the building. This was done for various reasons. Firstly, it allows the building to be read easily by passers by. The shape and material qualities of each part will portray its use. Secondly, the pods can be elevated off the ground, allowing the ground floor below to be developed into a museum park in order to promote the museum park boulevard and to take the ISDF proposals into consideration. Lastly, by splitting them, a passage could be created between the two where circulation can happen. Such an area will allow for interaction between the two parts of the building and their users.

'PROGRAMME: a determined set of occurrences, a list of required utilities, often based on social behaviour, habit or custom.

EVENTS: An intermediate set of unexpected outcomes.' (Tschumi 2000:13)

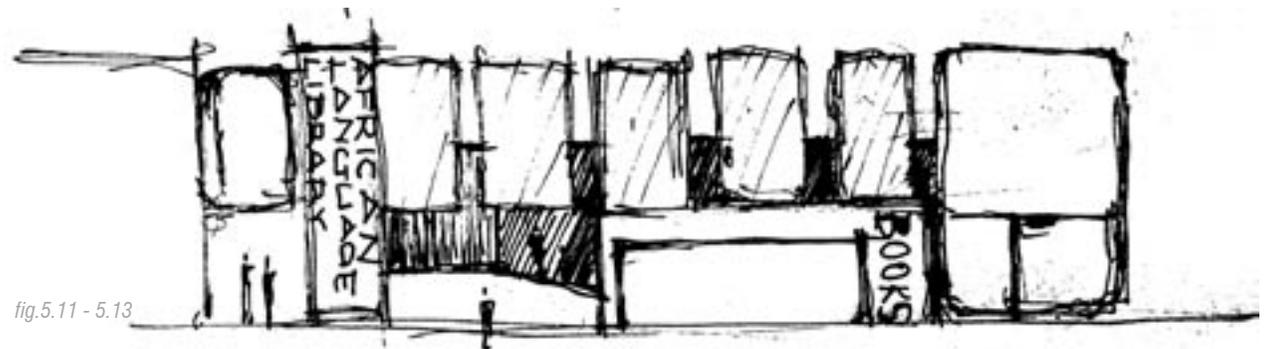
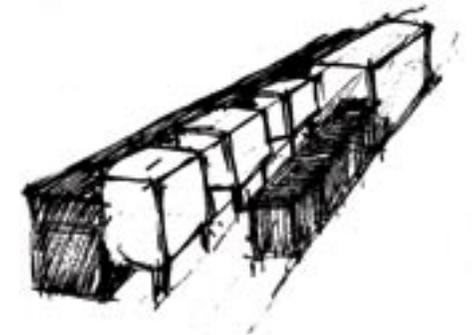


fig.5.11 - 5.13

Design Investigation

Concept Exploration

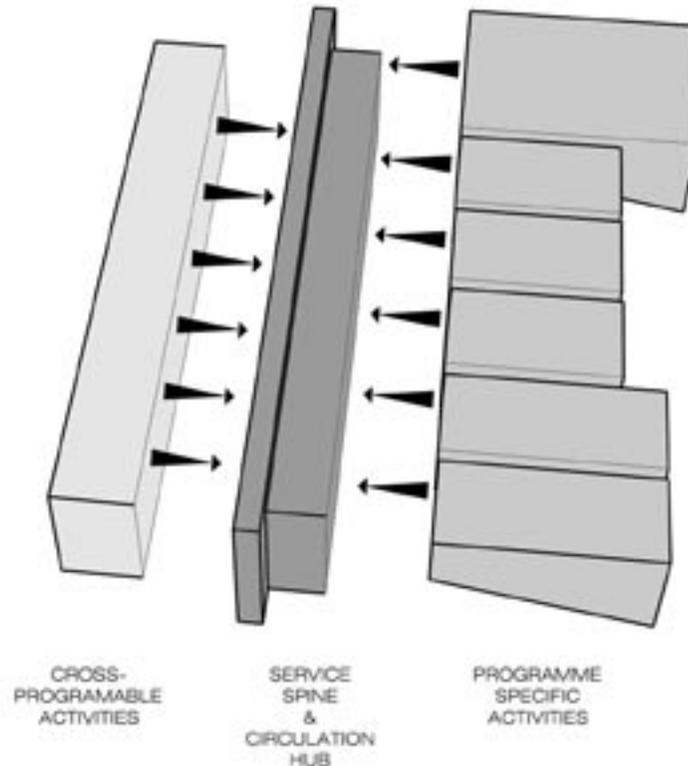


fig.5.14

CONCEPT

Interaction between constant and transformative

INTERACTION

In response to the context, the design should allow for a balance between elements of consistency and elements of an adaptive, transformative nature

The concept proposal shows the cross-programmable (transformative) activities in the main building, which will house the library and offices.

The programme specific (constant) activities are housed in pods. This allows for freedom in designing the pods. Each can be designed to the size, shape and quality required for its use. They will house an auditorium, lecture halls, studio's and workshops.

Between the two parts of the building is a service spine and the circulation hub. These house the services that both sides of the building depend on. Placed in the middle, the two parts share facilities, allowing for an area for interaction between the users of the two parts.

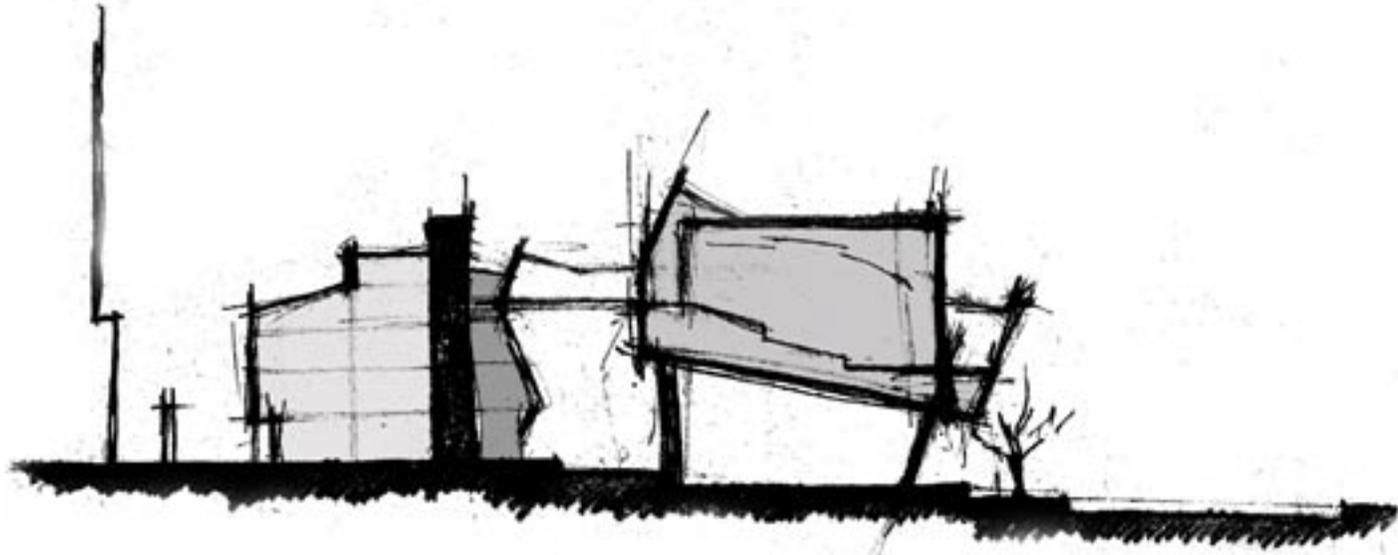


fig.5.15 Concept Sketch: Section

Design Investigation

Concept Exploration

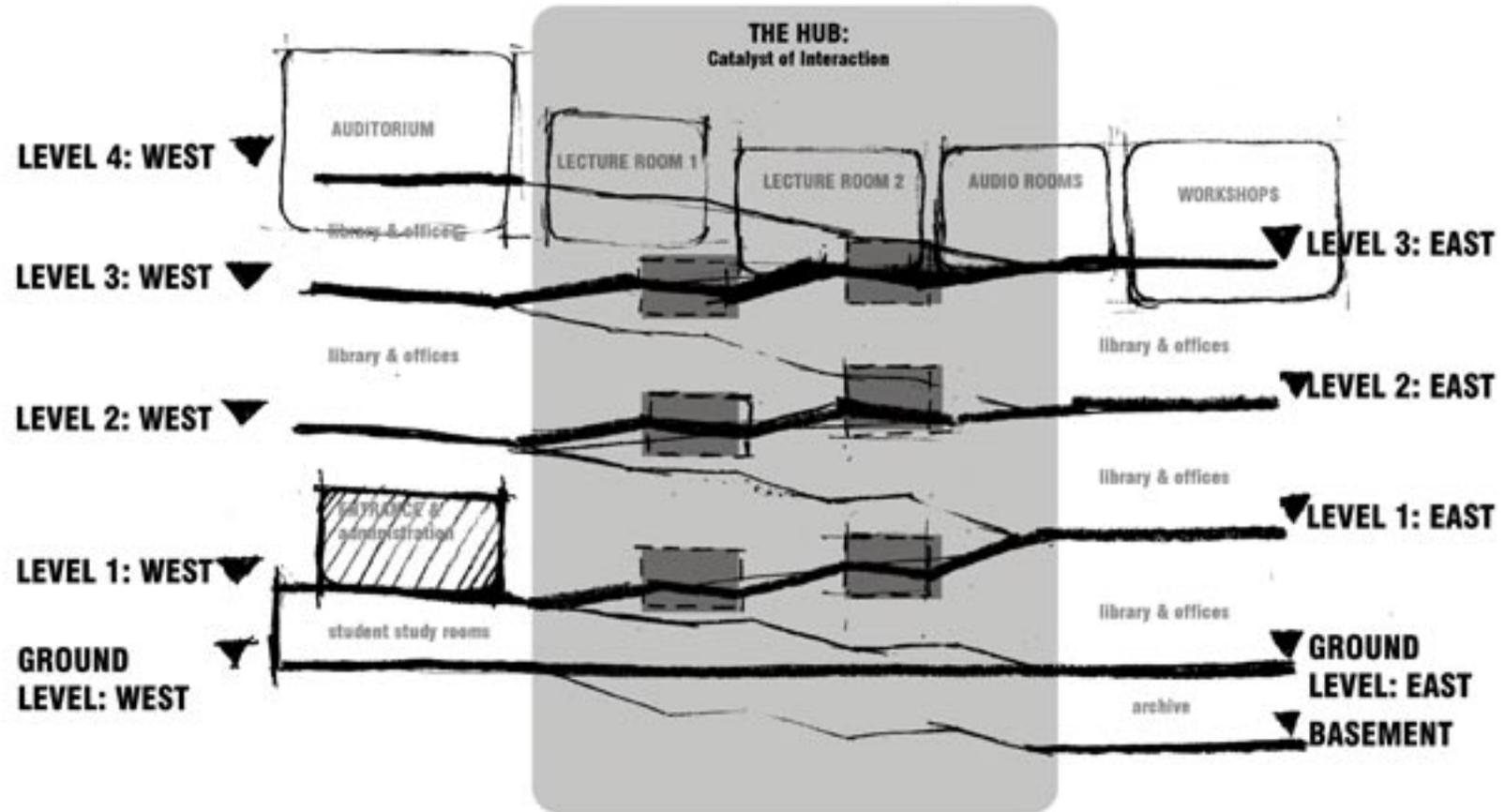


fig.5.16 **CONCEPT 1: Alternating levels connected with an internal ramp system.**

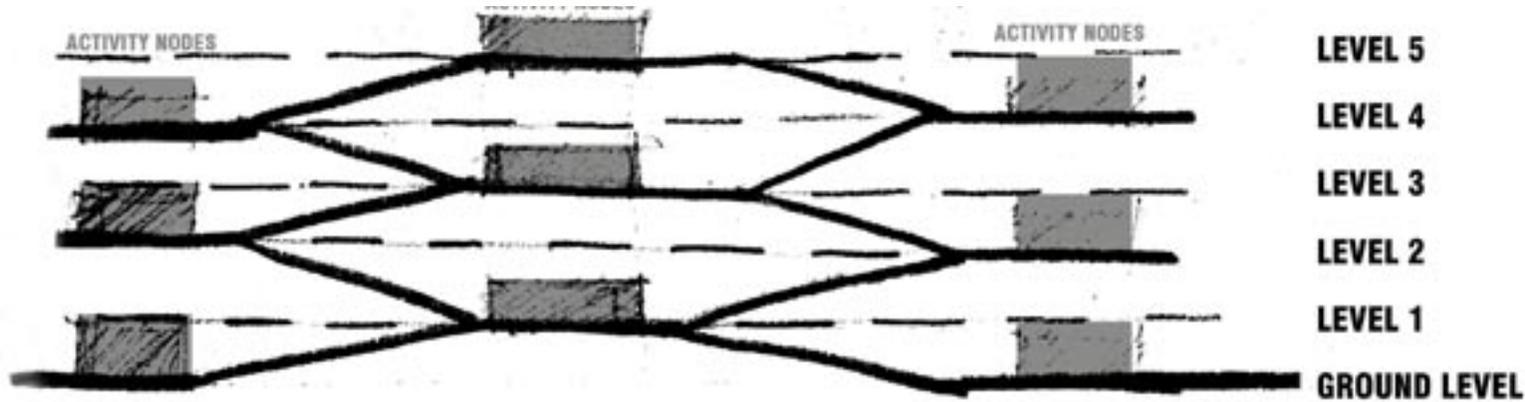


fig.5.17

CONCEPT 2: External ramp system connecting the programmed and unprogrammed buildings.

The ramp is a building on its own, housing movement and linkages. Activity nodes on the ramp act as thresholds into the building and create areas where activities can overflow and interaction can take place.

TSCHUMI'S HUB:

The hub acts as the main circulatory system of the building, connecting the various activities whilst acting as an interactive node that links all users and events. (Tschumi 2000: 289)

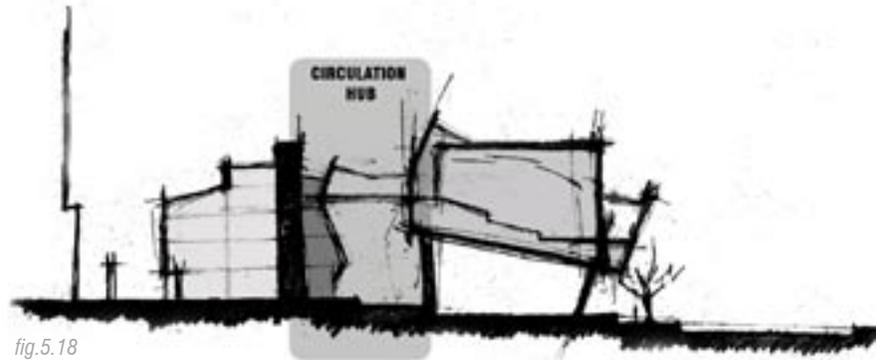


fig.5.18

DEVELOPING THE RAMP

Design Investigation

Design Considerations

INTEGRATION

This project is an experiment in designing for the different social and cultural groups inhabiting the periphery of Pretoria's CBD.

INTERACTION

As determined in the site analysis, the CBD buildings do not provide for new requirements set by its inhabitants. Not only were the buildings designed for one culture only, but also for administration and official use. The post-apartheid occupants require a more vibrant city centre. One in which they do not only work but live, play and interact.

The design addresses these needs by allowing for public, semi-public and private areas. The public area is provided by developing half the site into a museum-garden with infrastructure for a kiosk, informal trade, exhibitions and outdoor performances allowing opportunities for people to interact. The semi-public area flows from the public area by means of ramps, access doors and visual links. These invite members of the public into the building where they can interact with regular users as well as with the facilities provided.

The design is a connection between different cultural groups and communities as well as the historical and new trends in Pretoria's CBD.

CIRCULATION

Circulation at ground level

Circulation on ground level was designed to integrate passers by and users.

Tourists: The ground level functions as an open museum-garden where exhibitions and performances can take place. The restaurant or kiosk in the old NZASM building will attract tourists from Pretorius Square to the site.

Commuters: The ground level walkways provide infrastructure for the commuters who move to and from Bosman Street Station to the CBD during peak ours. Small trade can be put up during this time and taken away once the commuters leave.

Users: At any stage, the tourists and commuters will have opportunities to enter the building via ramps and stairs. Users can either enter through the north or will be able to park on the south or in the basement.

Staff: Staff parking is provided at the back near the staff entrance.

Deliveries: Deliveries will be via the basement.

Vertical Circulation

The circulation system is the most important part of the design as this is not only a space for movement but is where interaction between users will take place. The circulation hub is the centre of the building: connecting the constants and the transformative. However, it is clearly visible from outside. This will allow users and passers-by to understand the building and to be invited in. The hub is the semi-public zone of the building.

Design Investigation

Design Considerations

It allows more flexibility in the main building as this is almost free of circulation.

GATEWAY

As a capital city, the gateways to Pretoria will be governmental and institutional buildings. It is important to design a facility that is an example of current South African architecture.

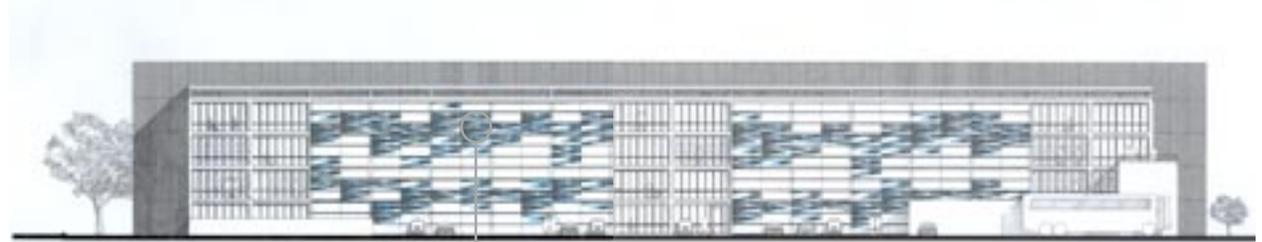
TEXT

Text will be used on the facade to illustrate its use as an institute for African language studies. African artists will be commissioned to do murals inspired by literature.

The south facing glass facade will be covered in letterwork of poems written in African languages.

The concrete walls on the west and east facades can have text cast into the concrete depicting the name of the institute.

Walls can also be left open for graffiti to be done on them.



Design Investigation

Design Considerations

TRANSFORMABILITY

The main building is designed to be flexible and adaptable to a variety of uses. Flexibility is achieved in two categories.

Refurbishment

Care was taken to allow for low cost refurbishment of the building, if the users or function of the building were to change at a later stage. Every second floor of the main building is of timber and every other floor of reinforced concrete. These timber floors can be removed when double volumes are required, so the layout can be changed. A grid of steel I-section beams provide structural support on a 5mx8m grid. Raised floors allow for services, such as air-conditioning and cabling, to be taken through the floor. Raised floors will be installed on a grid system and will allow for flexibility of layout.

Every day use

Flexibility for everyday use includes the raised floor system which allows services to reach all parts of the building independent of the layout.

Movable parts of the timber floors allow for more flexibility. These floor panels are situated under the existing timber floor and can be slid out using a pulley system to increase the floor area as required.

Calculations:

Aim: To determine load that each wheel will carry in order to choose the correct system form the manufacturer.

Density of timber:

Pine = 480 – 720 kg/m³ (use maximum)

Density of plasterboard = 1280 kg/m³

Determine the amount of timber used:

- $3\text{m} \times 0.125\text{m} \times 0.038\text{m} = 0.01425\text{m}^3$
- $2.5\text{m} \times 0.125\text{m} \times 0.038\text{m} = 0.0890625\text{m}^3$
- $3\text{m} \times 2.5\text{m} \times 0.016\text{m} = 0.12\text{m}^3$
- $3\text{m} \times 2.5\text{m} \times 0.008\text{m} = 0.048\text{m}^3$

TOTAL = 0.2833125m³

Determine the amount of plasterboard used:

- $3\text{m} \times 2.5\text{m} \times 0.0064 = 0.048\text{m}^3$

Weight of timber:

$$0.2833125\text{m}^3 \times 720\text{kg/m}^3 = 203,985\text{kg}$$

Weight of plasterboard:

$$0.048\text{m}^3 \times 1280\text{kg/m}^3 = 61.4\text{kg}$$

TOTAL: 265.4 kg on each wheel

Thus choose the following system:

Henderson 301H straight sliding gear to carry up to 400kg consisting of galvanised steel top track type 301H, side fix

Design Investigation

aluminium brackets and end clips type 1A/301, adjustable hangers type 57A/S, brass roller guide type 106N/100, galvanised steel bottom guide channel 100, two bow handle type 463.

Interchangeable partition walls are provided on a grid system for ease of use. The grid consists of tracks built into the ceiling and floors. The panels can be clipped into these, or removed as required. When panels are not in use they can be rolled into storage rooms in the service core. Panels include: Closed panel, panel with opening, panel with glass window, panel with door, balustrade.

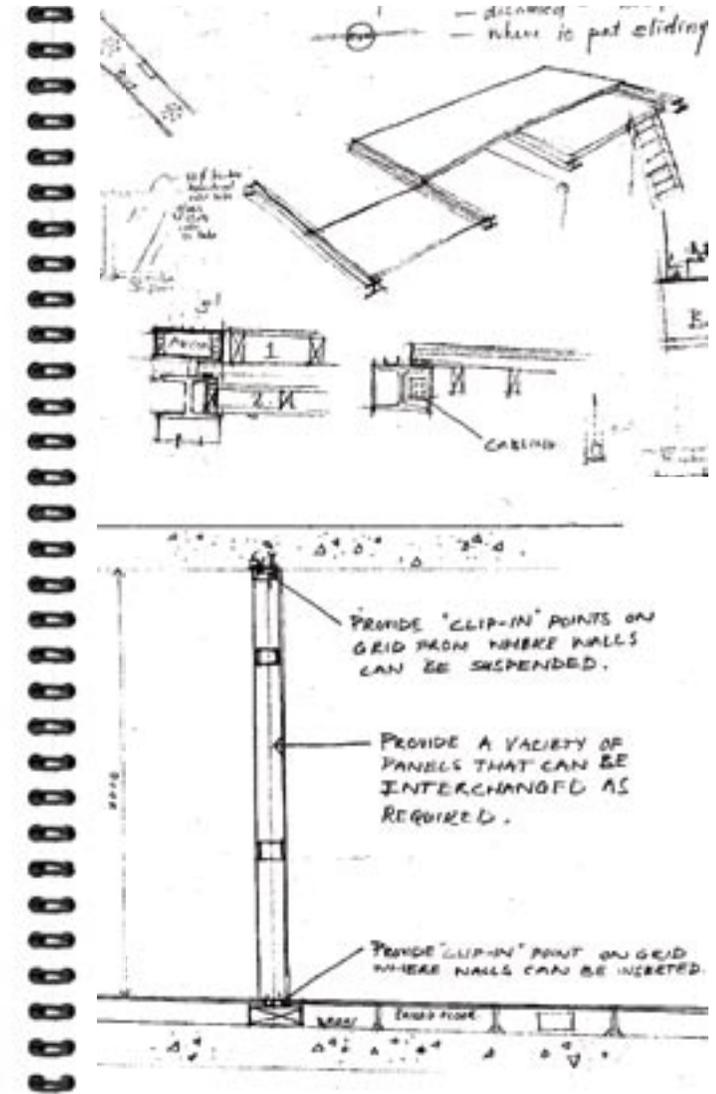
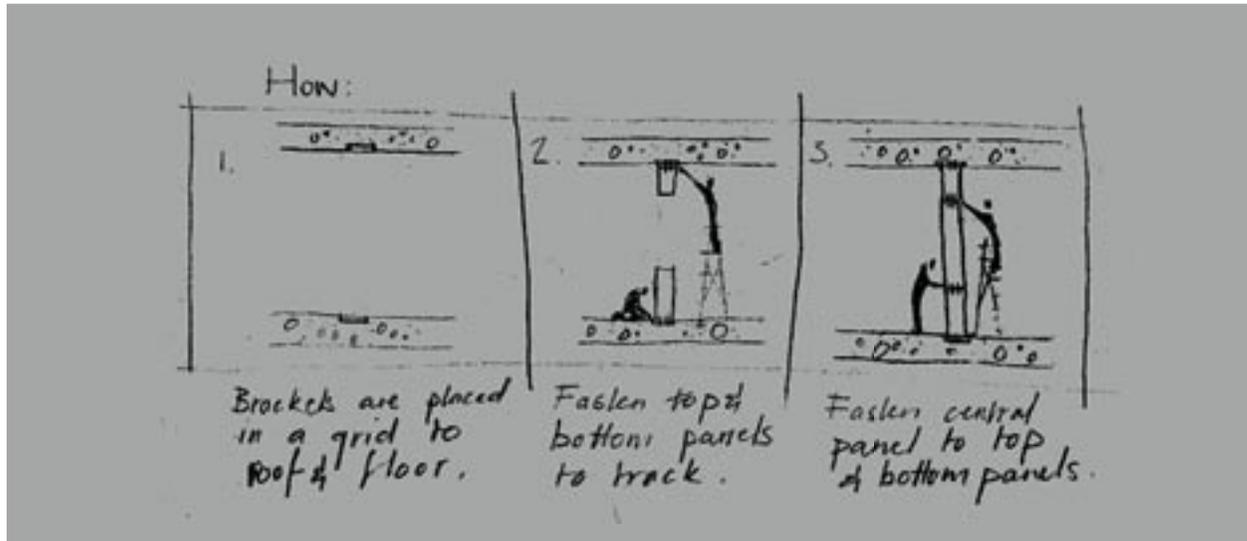


fig.5.19 & 5.20

Design Investigation

Design Considerations

ORIENTATION & CLIMATE

Orientation

The orientation is determined by the city framework, and the functions housed. The main building, which contains the library, is set back on site to create a public open space on ground level. The main façade faces north, favourable for the location of the public open space and the foyer of the main pod. The library building faces south, which is preferred as sunlight damages books.

The building is tilted slightly towards the north-west to accommodate the movement of commuters through the site and encourage them to move past and into the building.

Sunlight

With a maximum of 80% sun in summer and 67% in winter (AAL310, 2002: 19), sunlight is an abundant resource. Careful planning of glazing overhangs and orientation will ensure that glare is minimised but that a comfortable amount of heat is permitted into the building. The design process also focuses on harvesting sunlight for energy.

Vertical Sun Angles

TIME	21 MAR/21	22 JUNE	23 SEP	22 DEC
08:00	26°	14°	26°	26°
10:00	51°	22°	51°	63°
12:00	65°	41°	65°	80°
14:00	51°	22°	51°	63°
16:00	26°	14°	26°	26°
18:00	.	.	.	10°

Existing Buildings

The existing department of home affairs has north-facing windows. Care was taken not to block direct sunlight onto the façade. This influenced the decision on shape and height of the proposed design.

Louvre System

Sunscreens block direct sunlight during summer whilst diffusing light and preventing glare. For this reason louvres are fitted over the glass roof of the circulation hub.

Natural Light

Direct sunlight is hazardous to books but indirect natural lighting is preferred to artificial light for reading. Therefore light is allowed into the building through glass walls on the south façade.

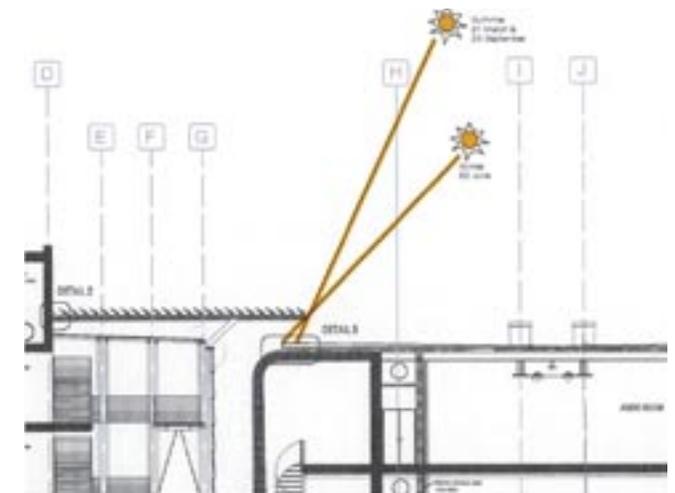


fig.5.21

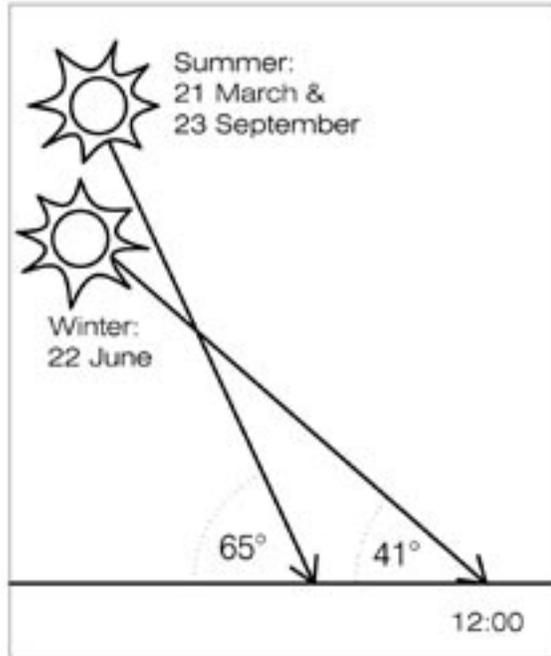


fig.5.22

The library building is set behind a semi-solid service wall and faces south. This is ideal because direct sunlight damages books, while natural indirect light is favoured above artificial light for reading. For this reason the offices and study rooms are located on the southern façade. Direct morning sun from the east should be blocked out of the building. For this reason the plant room is situated on the eastern façade. Direct sunlight from the west should also be avoided.

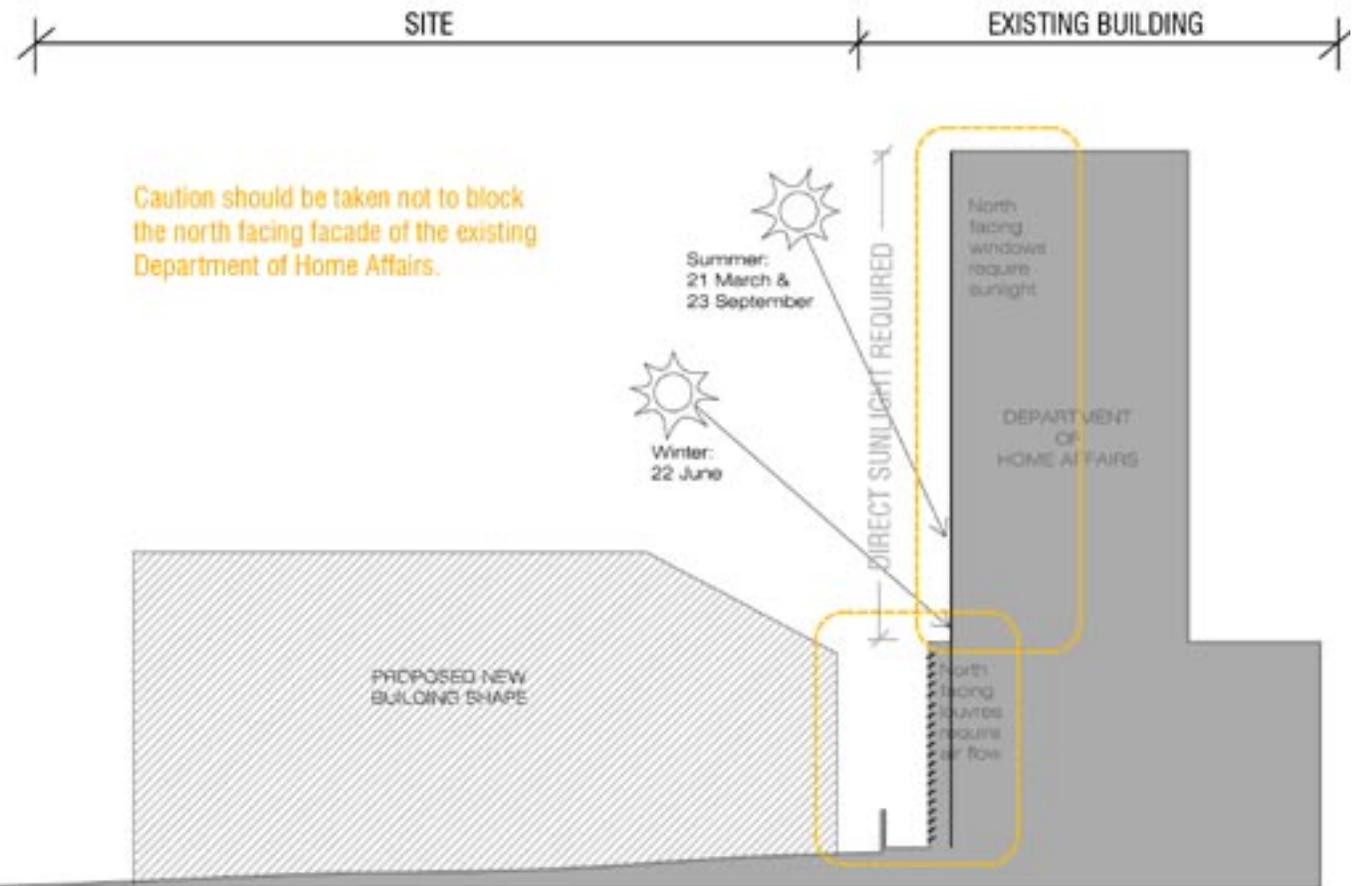


fig.5.23

Design Investigation

Design Considerations

Rainfall

Summer rainfall area, thus November to March.

50-80 rainy days per year

380mm to 700mm per year

Hail 4 times per year

High evaporation levels during summer.

Average humidity: 59%

Water is harvested from the roof through downpipes into water tanks situated underground. The tank will be fitted with an overflow valve when it full. Stormwater channels and the basement water drainage is also stored in an underground tank. Stored water will be used for irrigation/cleaning of outside and basement surfaces. Grey water can also be used for flushing WC's.

Calculations:

Roof catchment area: $90\text{m} \times 12\text{m} = 1080\text{m}^2$

Average rainfall per rainstorm: 40mm

$40 \times 1080\text{m}^2 = 43\,200$ litres per rainstorm

43 200 litres per rainstorm that can be used to irrigate the park.

Tank size:

5 000mm long x 3 456mm wide x 2500mm high will hold exactly 43 200 litres.

Temperature

Summer : Average temperatures of 16°C to 30°C with occasional highs of 42°C. Maximum monthly average of 28,6°C in January.

Winter: Average temperatures of 7°C to 23°C with lows of up to 0°C at night.

Minimum monthly average of 4.5°C in July.

Thermal mass is provided by the concrete walls and roof absorbing direct and indirect solar radiation during the day and releasing it into the building later. The amount of time it takes to release the heat depends on the thickness of the wall/ roof. The 300mm thickness is ideal for allowing the heat to be absorbed during the day and be released at night. The lower temperatures absorbed during the night will be released during the day. This will provide a comfortable work environment and will alleviate the use of a mechanical heating and cooling system.

Wind

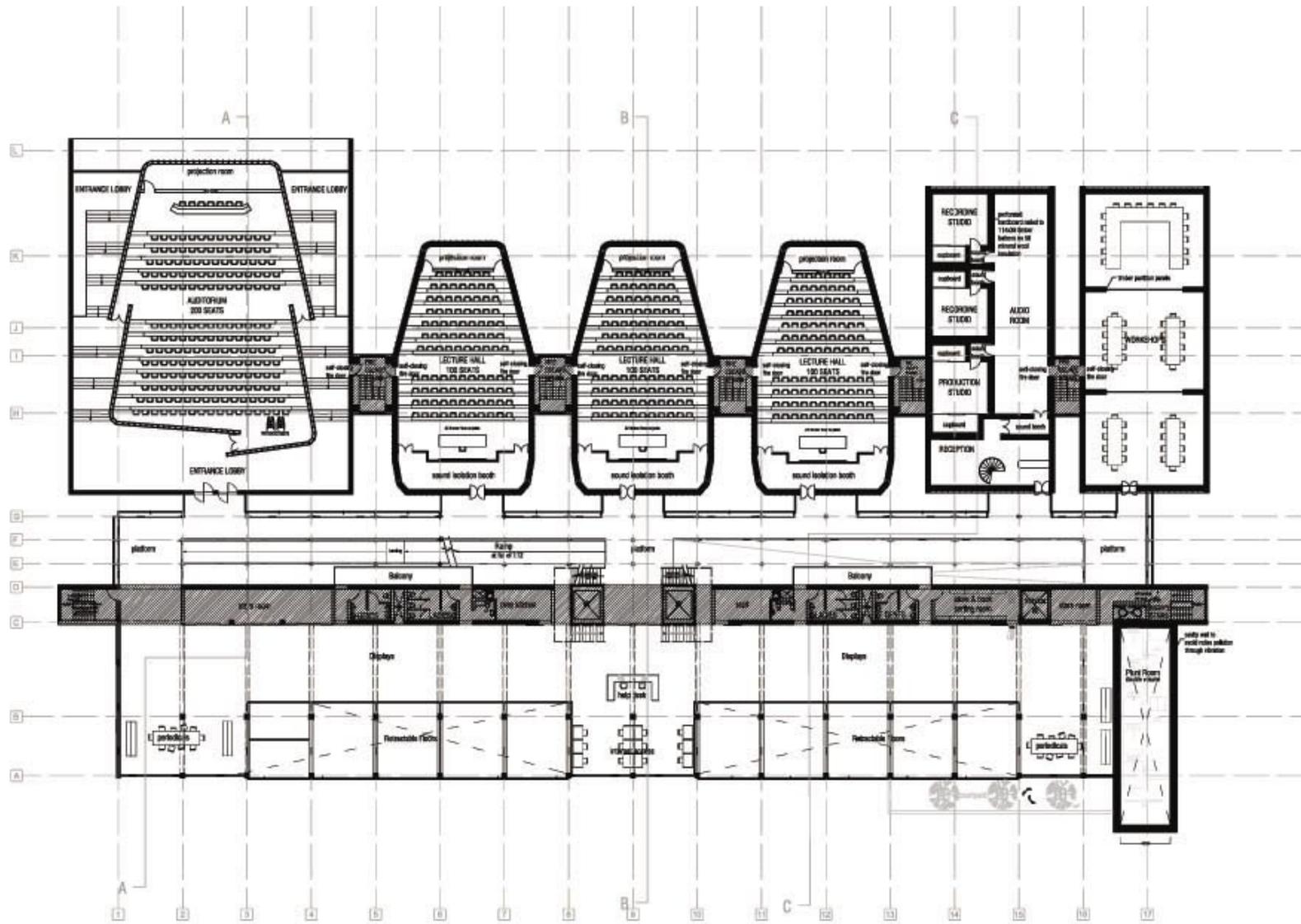
Summer winds blow from east/southeast to northwest.

Winter winds form South-west and north-east.

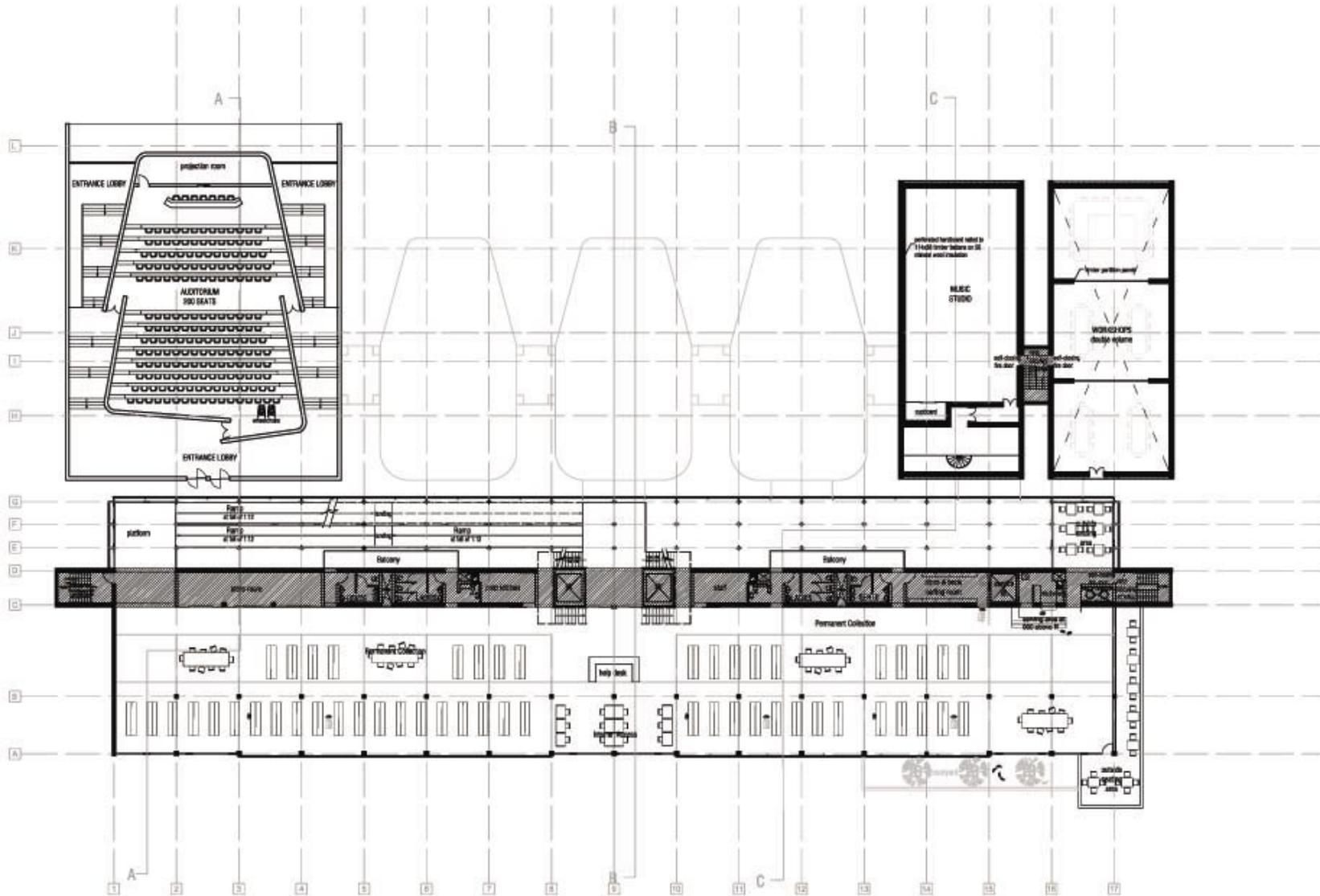
The building is orientated for maximum cross ventilation. The summer breeze is encouraged to pass through the museum park area while the winter wind is blocked by the buildings to the north-east of the site.



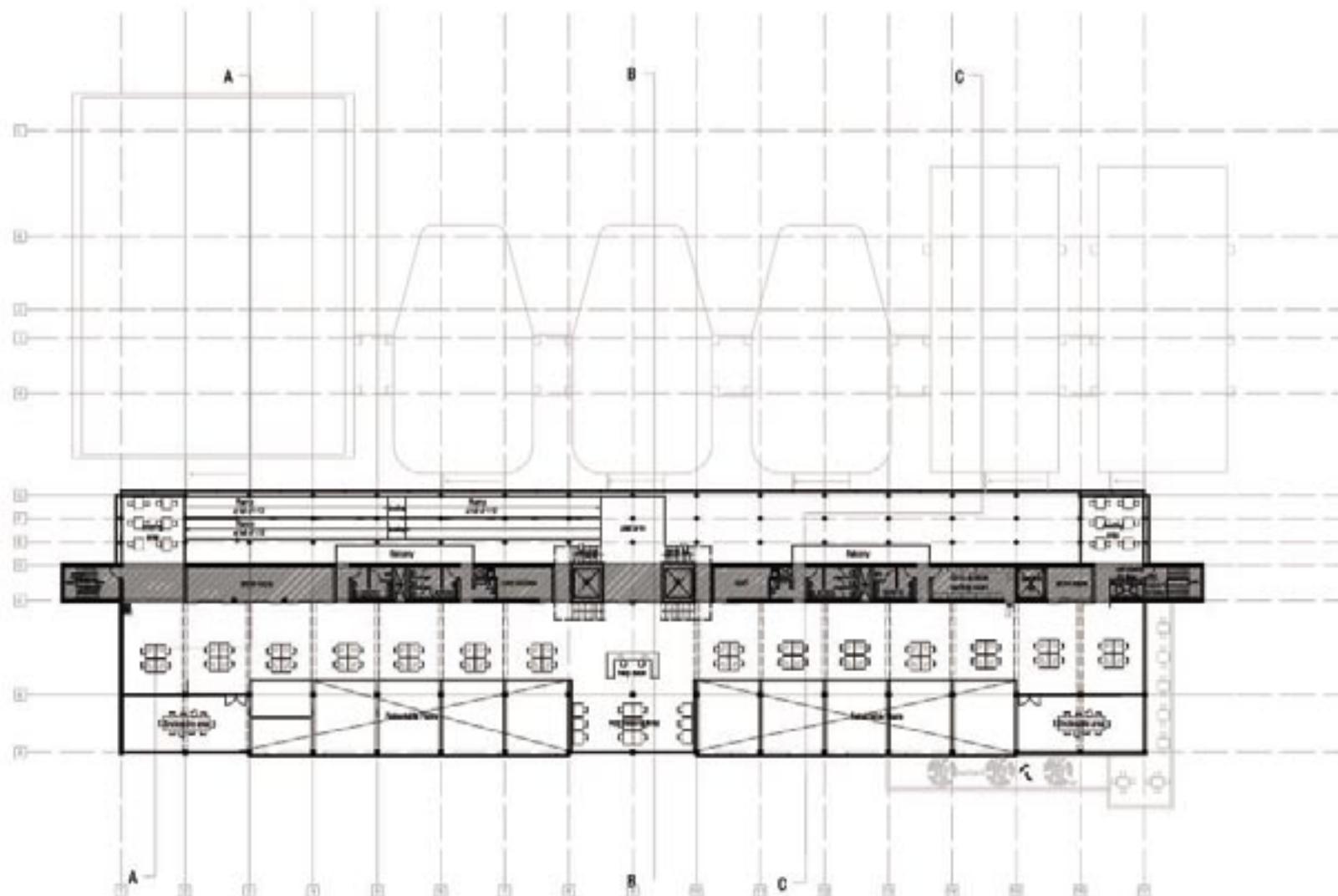
fig.5.25



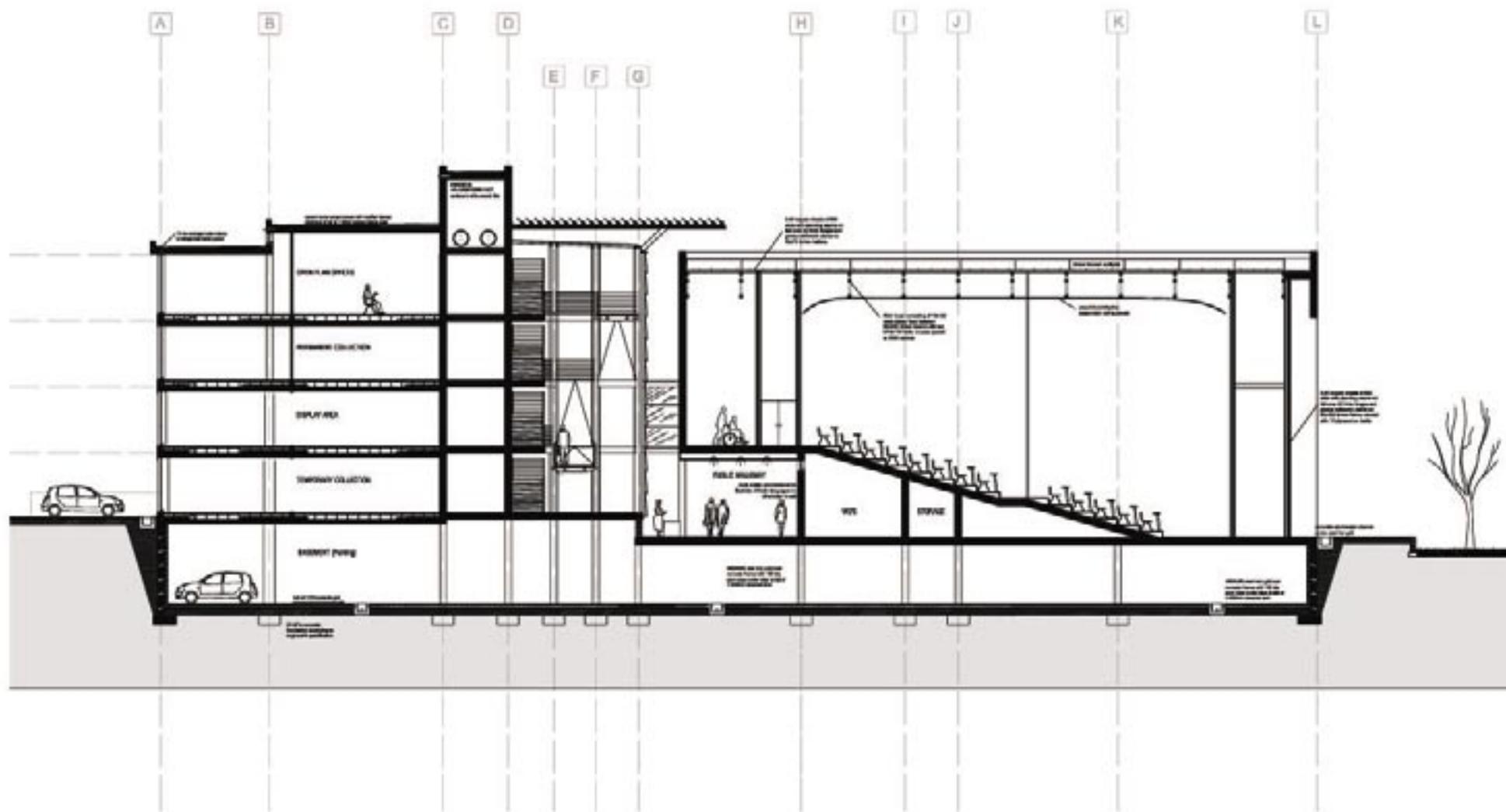
Institute for African Language Studies	Drawing Level 1 Plan	Scale 5m	Scale 1:500	Name Jacqueline Novellie	Mentor R J van Rensburg Date November 2006
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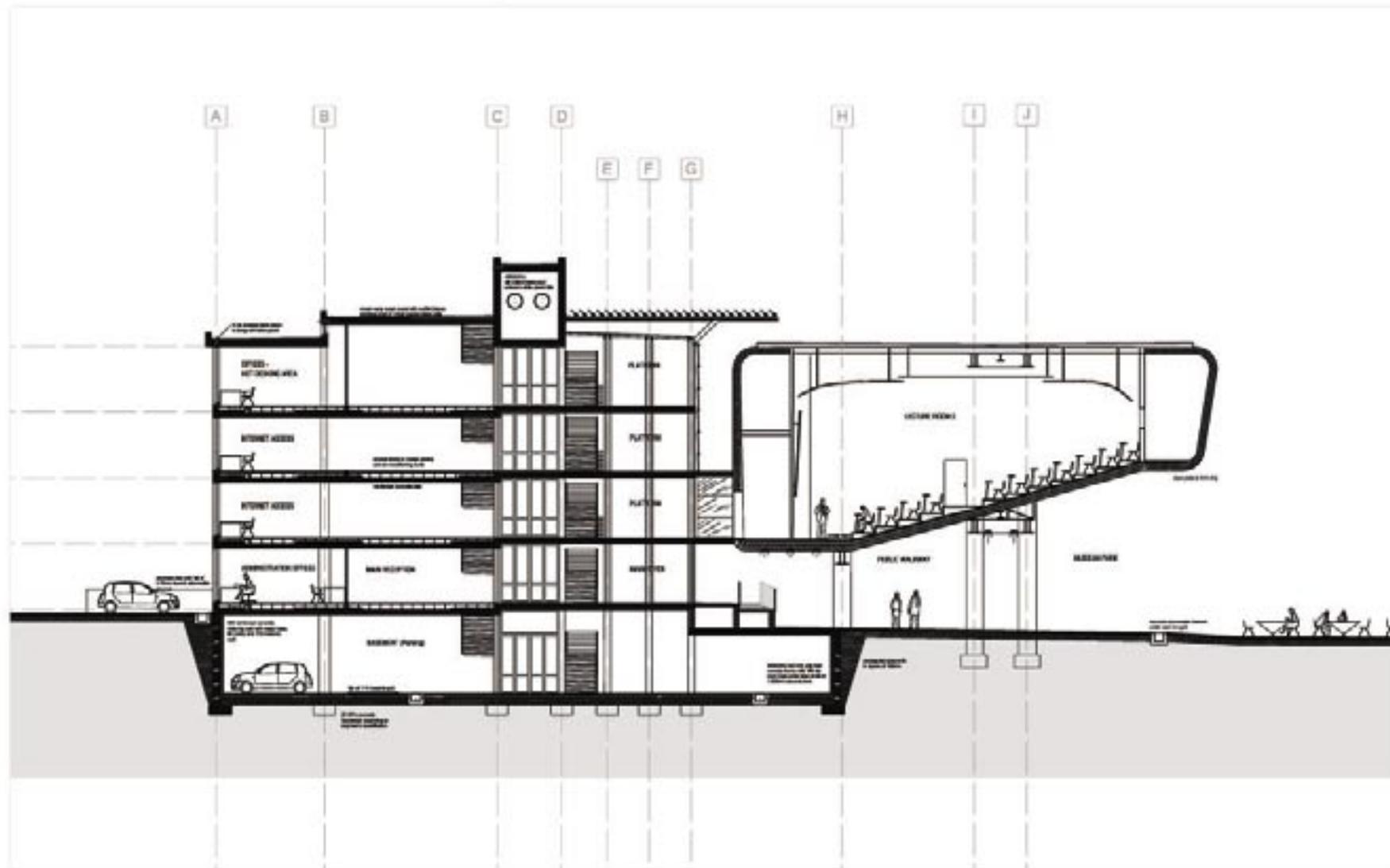
Institute for African Language Studies	Drawing	Scale	Scale	Name	Mentor	Date
	Level 2 Plan	5m	1:500	Jacqueline Novelle	R J van Rensburg	November 2006



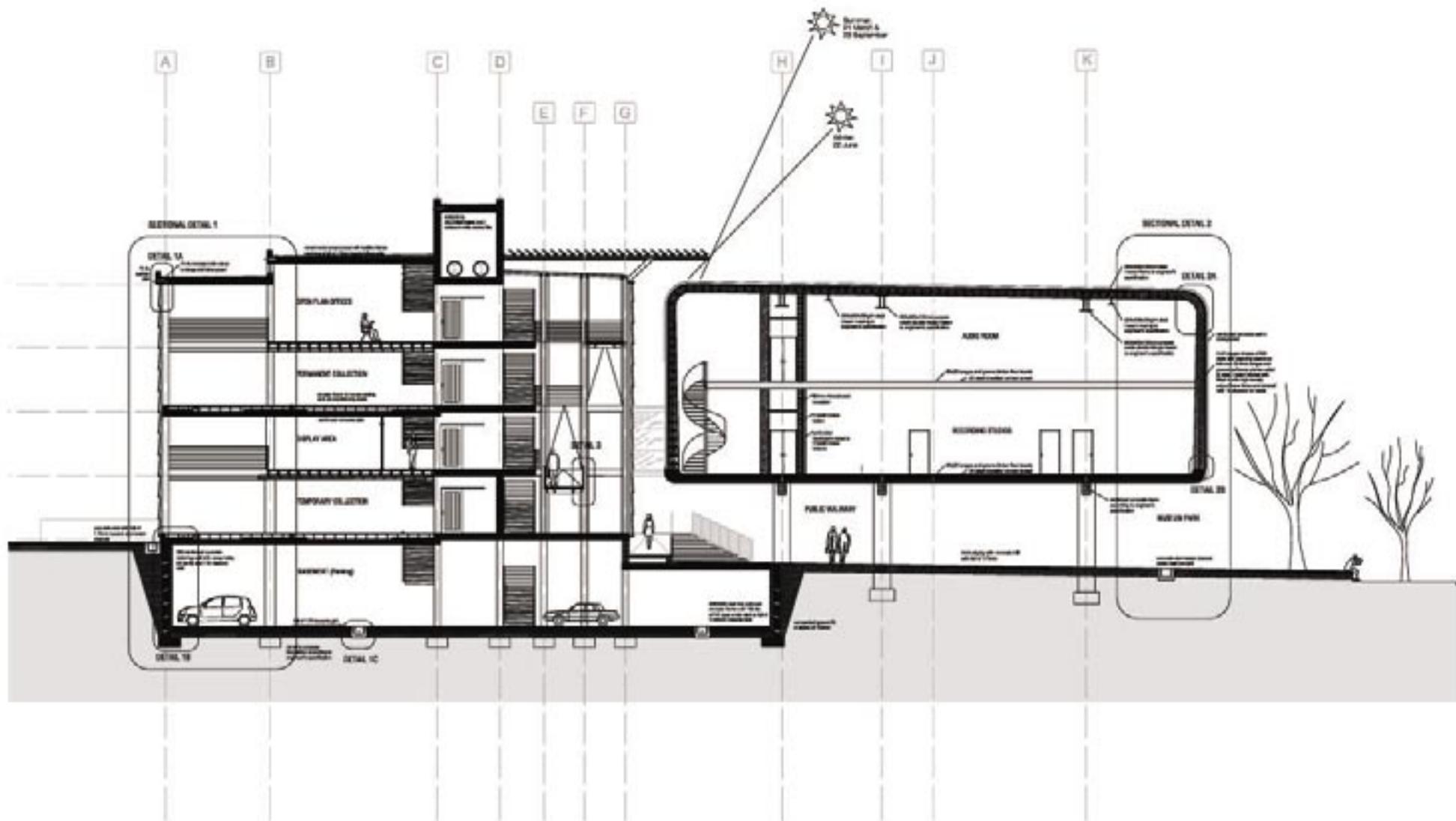
Institute for African Language Studies	Building	Scale	Scale	Name	Author	Date
	Level 3 Plan	5m	1:500	Jacqueline Novelle	R. J. van Rensburg	November 2006



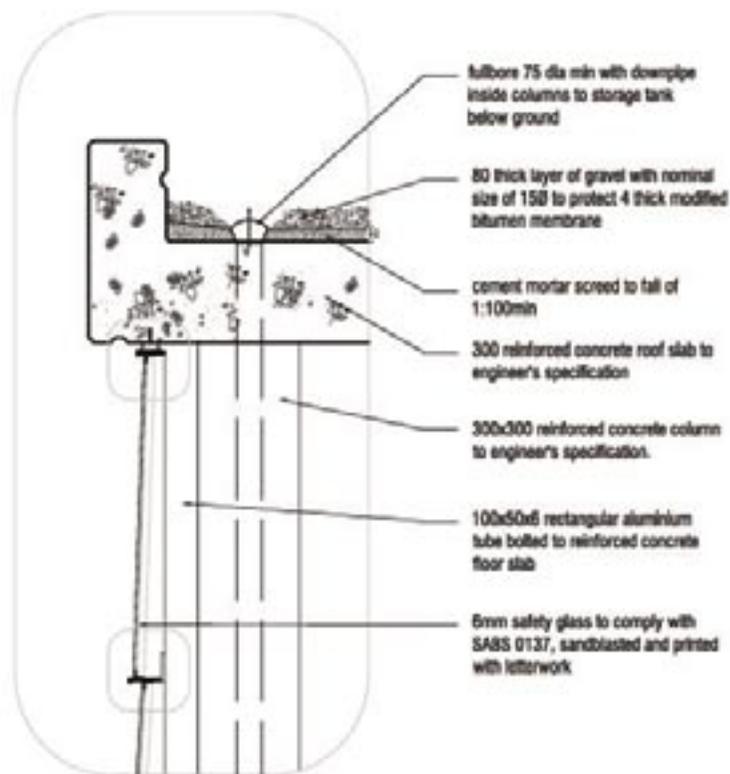
Institute for African Language Studies	Drawing Section A-A	Scale 2.5m 1:250	Date Jacqueline Novelle	Author R J van Rensburg	Date November 2006
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Institute for African Language Studies	Drawn Section B-B	Scale 2.5m	Date 1:250	Drawn Jacqueline Novelle	Checked R J van Rensberg	Date November 2008
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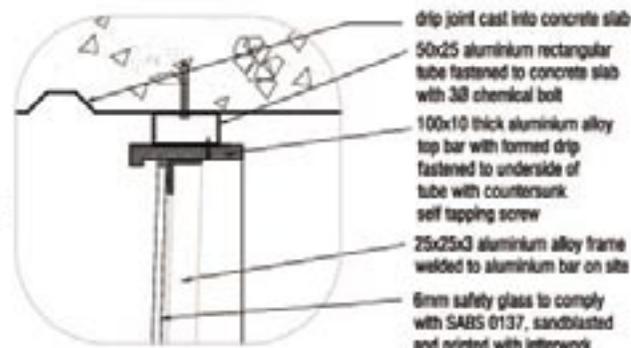


Institute for African Language Studies	Title Section C-C	Scale 2.5m 1:250	Date Jacqueline Novelle	Drawn R J van Rensburg	Date November 2006
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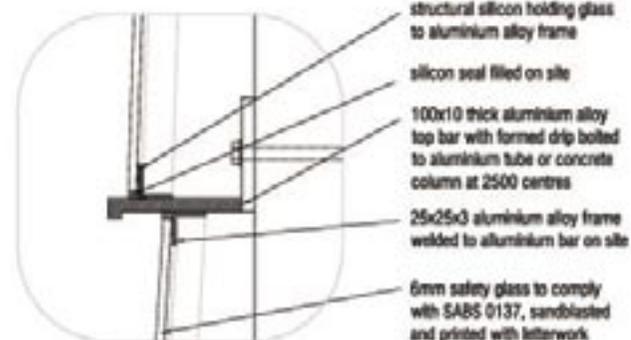
Detail 1A

Scale 1:20



Detail 1A.a

Scale 1:5



Detail 1A.b

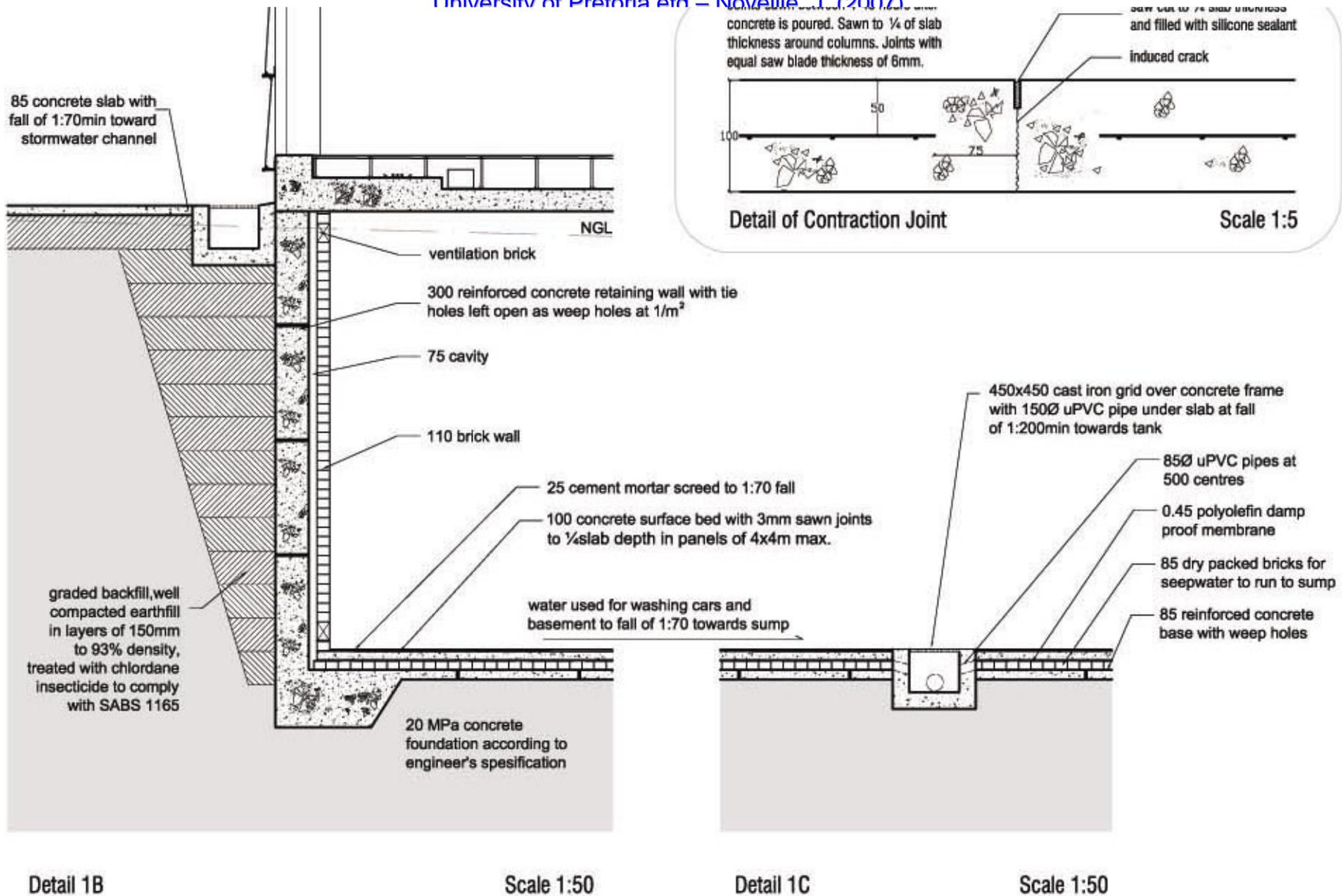
Scale 1:5

SPECIFICATIONS

Modified Bitumen Sheeting

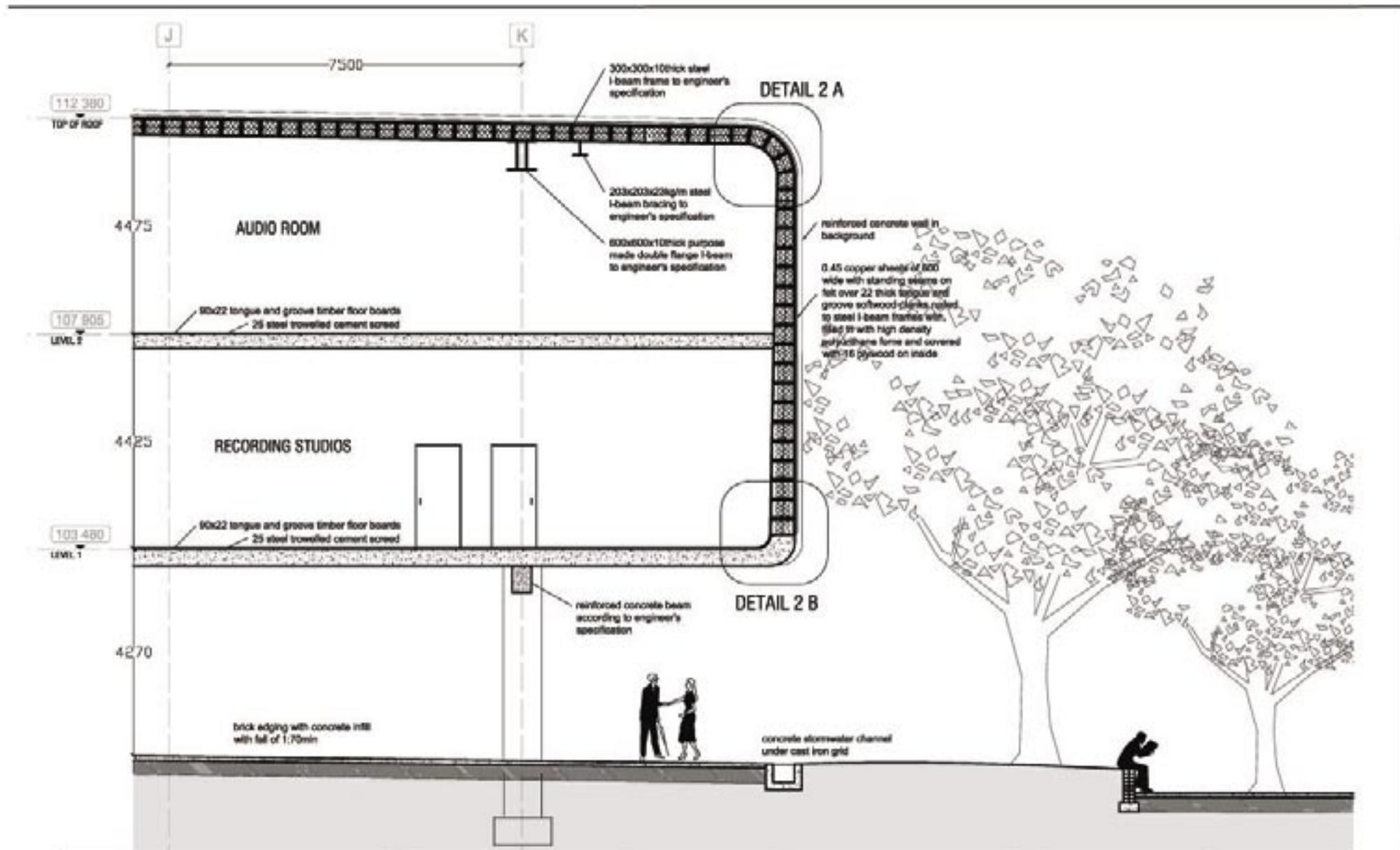
Modified bitumen sheeting consisting of a polyester core impregnated with polymer modified bitumen as specified, 4mm thick. Apply in a double layer where sheeting is covered with gravel. Seal laps by heat fusion. Surfaces to receive waterproofing must conform to SABS 021. Screed must be minimum 40mm thick and laid at fall of 1:70 min. Screeds must be clean, smooth, even and stable. Cracks up to 0.3mm are acceptable. Moisture contents of the screed must be less than 7%. Outlets must have a minimum of 75mm diameter and not be of plastic material. Waterproofing must be applied by trained artisans or contractor who is a member of the Waterproofing Federation of South Africa. A flood test of 48 hours should be conducted. Lay a geocomposite drainage layer over the waterproofing for protection, consisting of 80mm thick layer of light coloured non-absorbent natural stone of 15mm nominal size. Keep the stone back from outlets, gutters and water shedding edges and bond the stone in these areas with a thinly applied dressing compound.

Institute for African Language Studies	Drawn	Checked	Date	Drawn	Date	Drawn	Date
	Detail 1A		2006 DWG	Jacqueline Novelle		R J van Rensburg	November 2006

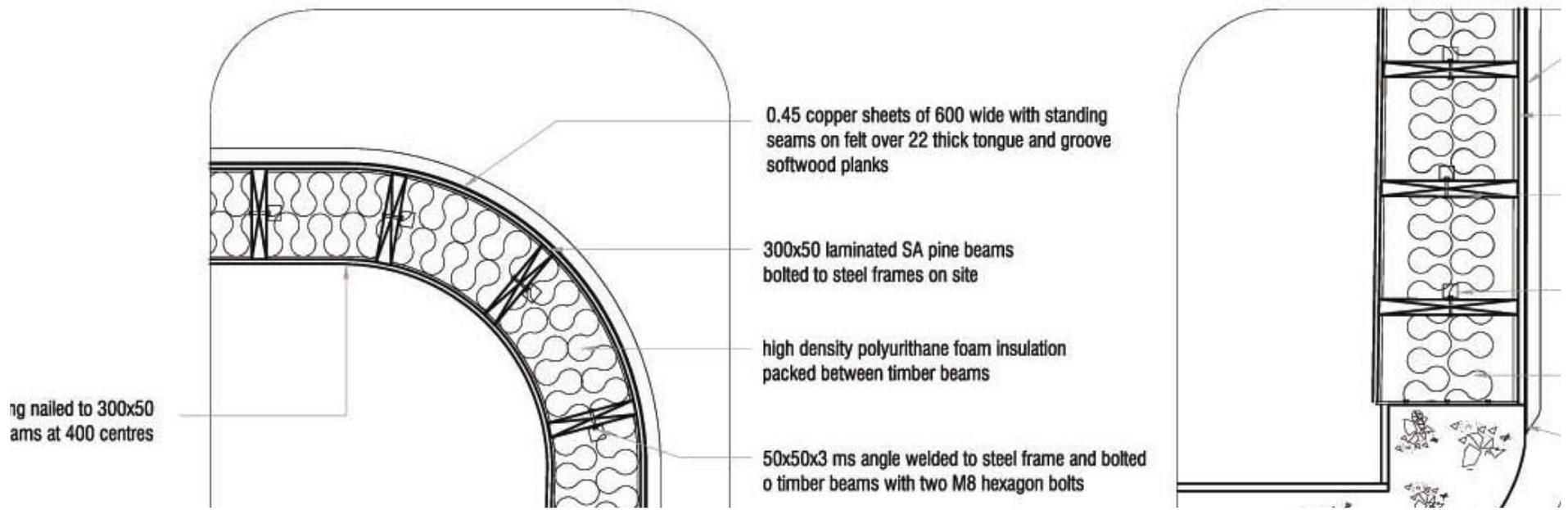


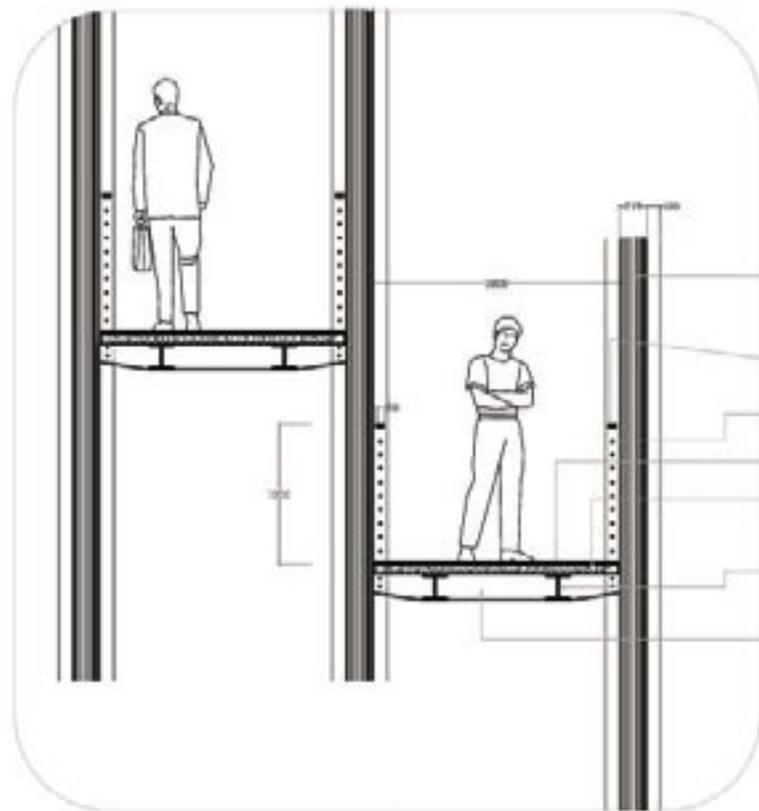
8

Institute for African Language Studies	Drawing	Scale	Scale	Name	Metric
	Basement Details 1B & C	1m	see dwg	Jacqueline Novellie	R J van Rensburg



Institute for African Language Studies	Sectional Detail 2	1m	1:100	Jacqueline Novelle	R.J van Rensburg	November 2006
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Connection of ramp to columns

Scale 1:50

Steel angles fixed to flanges with two M8 hexagon bolts

four 100 x 10 steel flanges welded to 2198 x 6 x 31.5kg/m hollow steel column

175x178x10 steel angle welded to 178x178x10 I-beam and bolted to flange

2198 x 6 x 31.5kg/m hollow steel column with four 100x6 steel flanges welded to it

1000mm high handrail of 50x25 timber fastened to steel flange

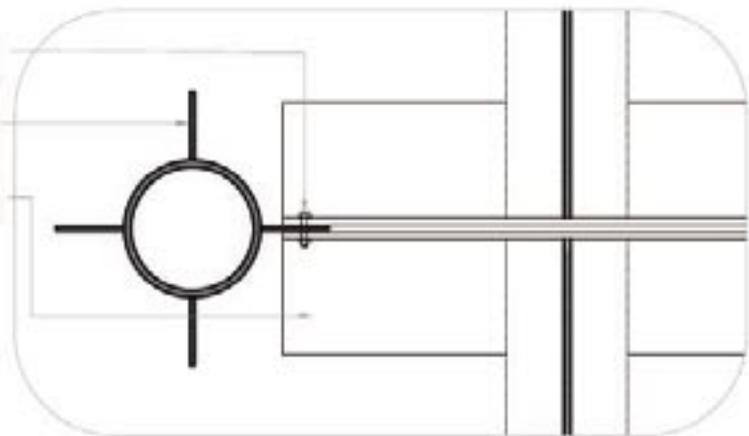
stainless steel cables 100mm apart spanned between flanges

25 sandstone tile floor finish

100 precast, pre-stressed hollow com concrete slab in sizes of 1800x900

178x178x10 steel I-beam spanning 5000mm between steel angles

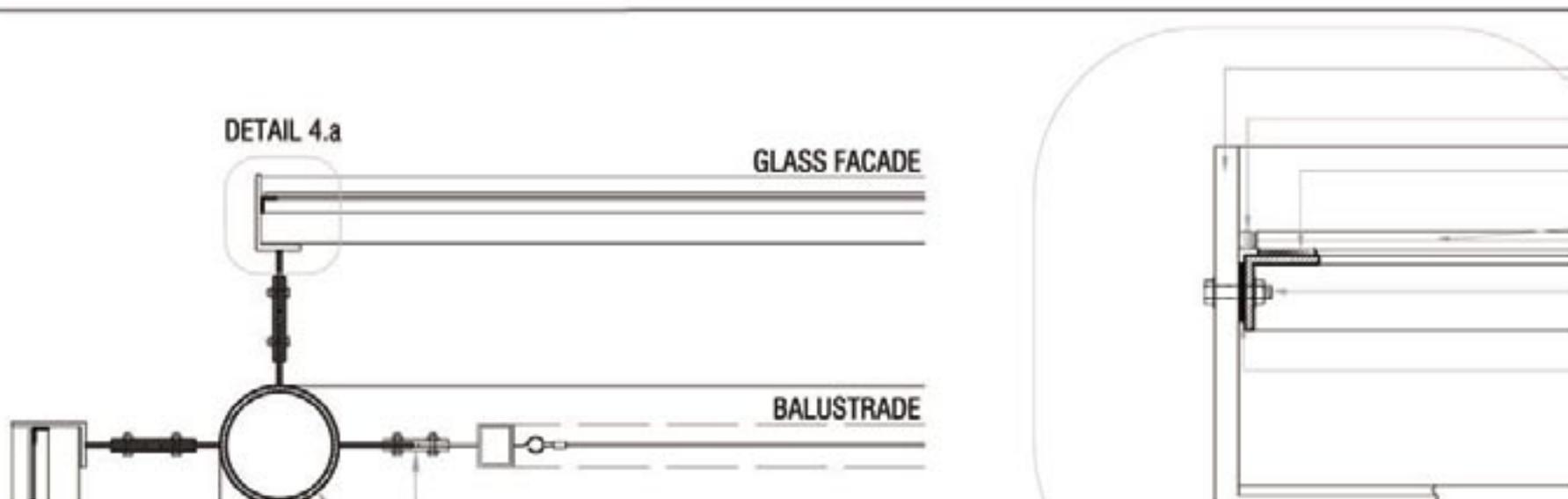
175x175x10 steel angle welded to I-beam at 5000 centres and bolted to 100x6 steel flange with two M8 hexagon bolts



Plan: Connection of ramp to columns

Scale 1:10

Institute for African Language Studies	Drawn	Scale	1m	1:50	Name	Jacqueline Novelle	Drawn	R J van Rensburg	Date	November 2008
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		ventilation	

TECHNICAL INVESTIGATION MATERIALS

Sourcing

Materials and labour should be sourced as close as possible to the site to reduce the embodied energy of the materials. Embodied energy is affected by the cost of sourcing and transporting materials. Use standard sections and sizes to reduce cost.

Robustness

A robust building can adapt to a variety of uses over its lifespan. In this design this is realised by having a strong structure that will last many years and a flexible interior that can adapt and change to the users' needs. By using materials that can be recycled or reused the building is also more robust.

Reinforced concrete

Positive: Thermal mass allows for regulation of temperatures.

Concrete can be moulded to a variety of forms. Conventional building material in South Africa, therefore skilled workers are available.

Negative: Expensive to demolish

Concrete is strong in compression and the reinforcing steel is strong in tension.

Steel

Steel elements can be taken apart and reused

Strong in tension- use smaller amount of material for spans. Can be shaped (hot rolled or plate folded) to create a variety of sections.

Glass

Glass is used to allow natural light into the building, to allow viewers to see into the building and to allow for a visual link between the different functions. Sandblasted glass is used on the southern façade as natural light is beneficial to the occupants but the glare from the adjacent home affairs could be a disturbance. Self cleaning glass (rough surface dust cannot settle on).

Timber

Many elements can be factory produced and fitted on site – this provides higher quality. Timber is light and is used for the flexible walls and floors so they can easily be moved. Timber is also used for the interior cladding of the pods. High friction surfaces such as stairs and handrails should be varnished with colourless resin.



fig.6.1





Technical Data

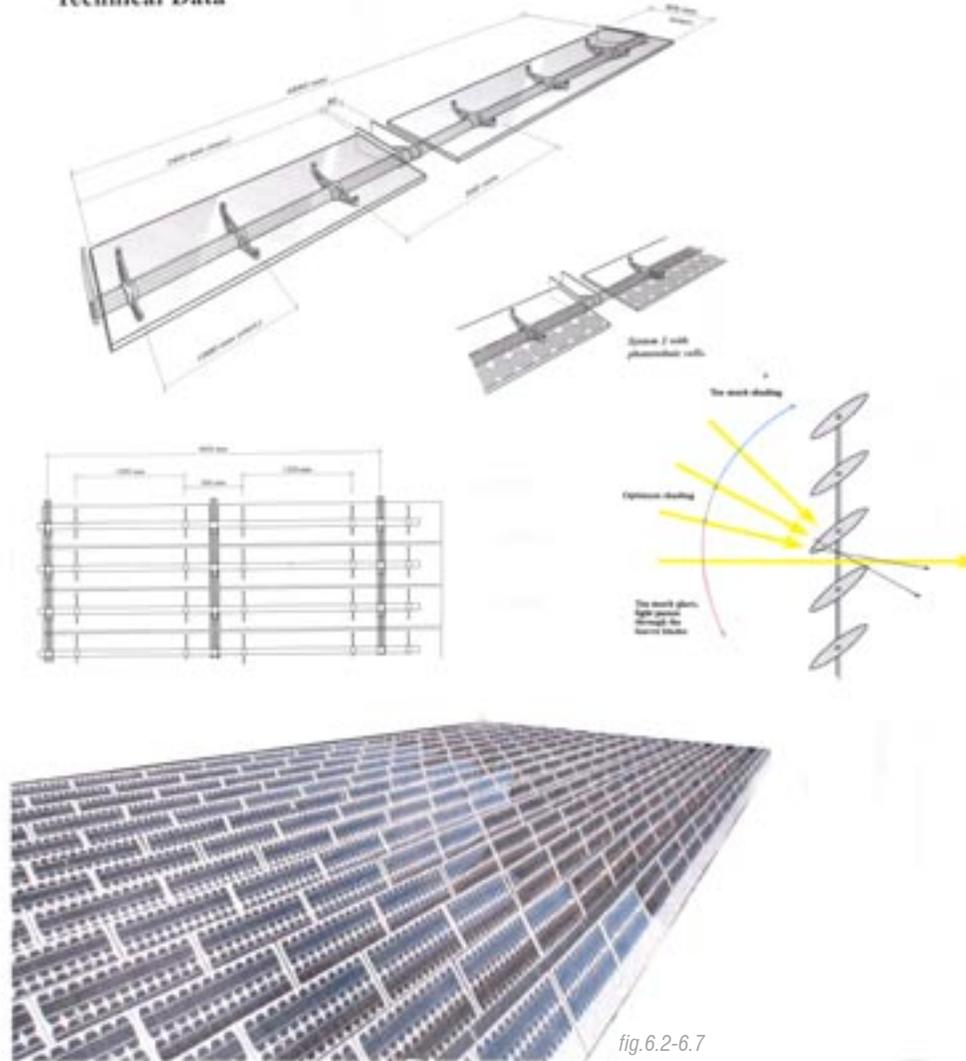


fig.6.2-6.7

TECHNICAL INVESTIGATION MATERIALS

Louvre System

The 'Colt' glass louvre system is investigated for the roof of the circulation hub. The louvers provide sufficient shading from the sun but still allows enough light through to illuminate the entire circulation hub. The louvers are controlled by a computer system in the BMS (Building Management Services) room on Level 3, to follow the sun's path and change direction throughout the day. Louvres are also equipped with Photovoltaic Cells to generate electricity.



Technical Investigation

Structure

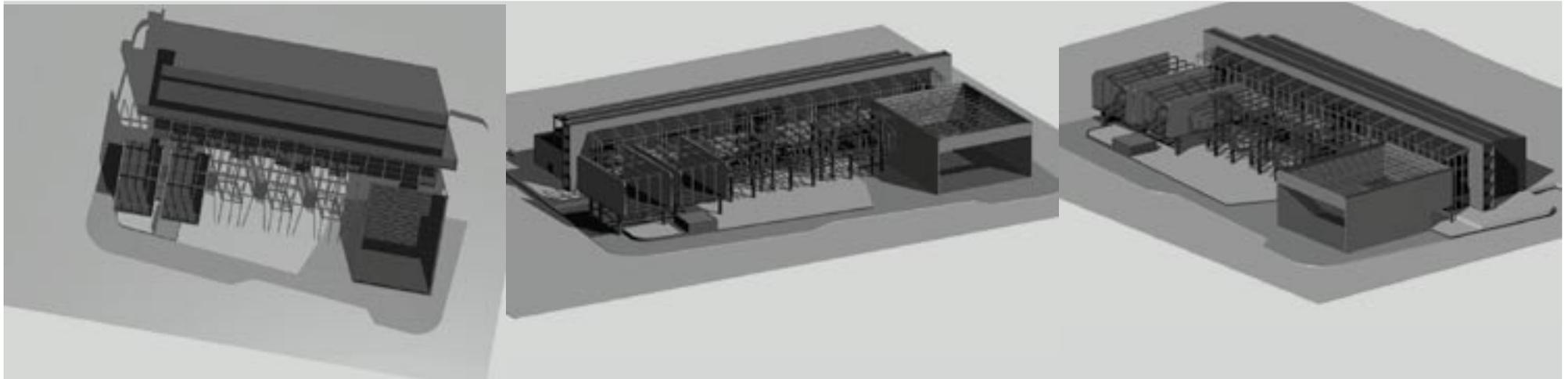


fig.6.8

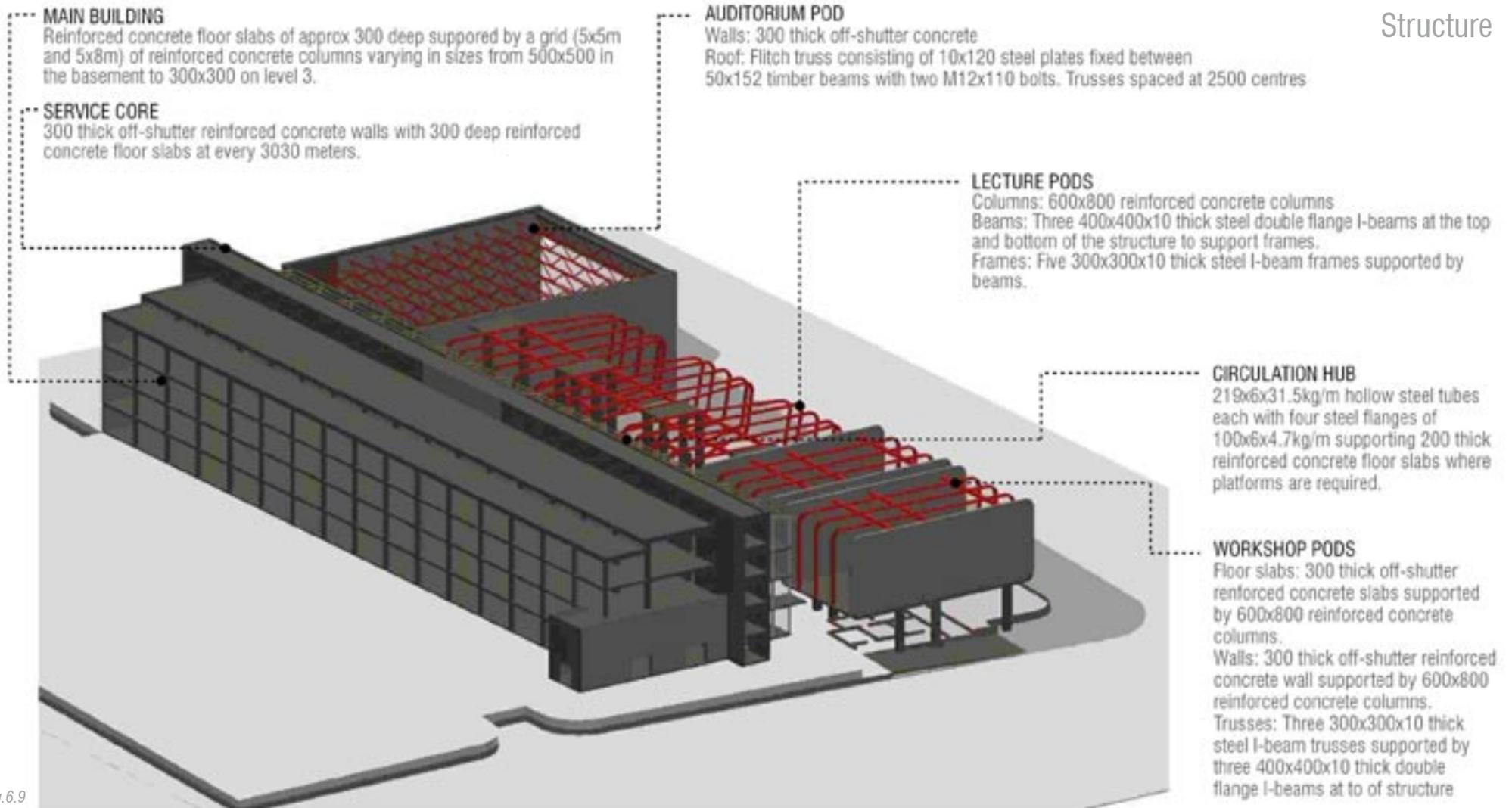


fig.6.9

Technical Investigation

Structure

Pods

The structure of the pods consists of steel frames supported by steel beams. Beams, in turn, are supported by concrete columns. The materials were chosen according to their structural qualities. Concrete is strong in compression and is therefore used in the columns where the strongest compressive forces are found. Steel, which performs well in tension, is used for the beams. For extra stability the steel beams are braced together at 1250 centres using a steel plate.

Due to the weight of the nose cone, distortion may take place in the steel frames. To prevent this, bracing is placed around the pod.

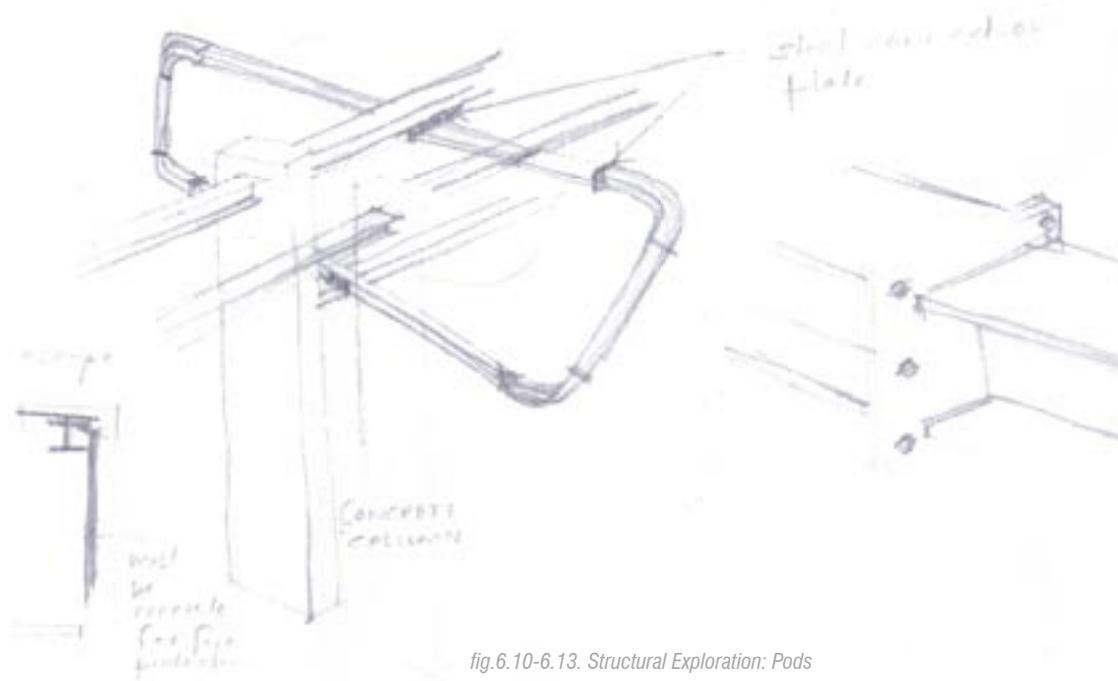
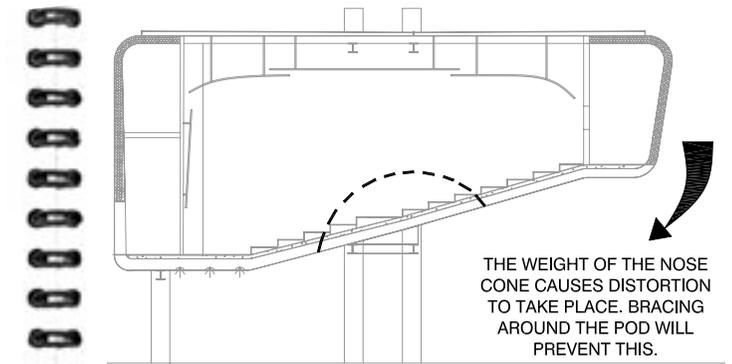
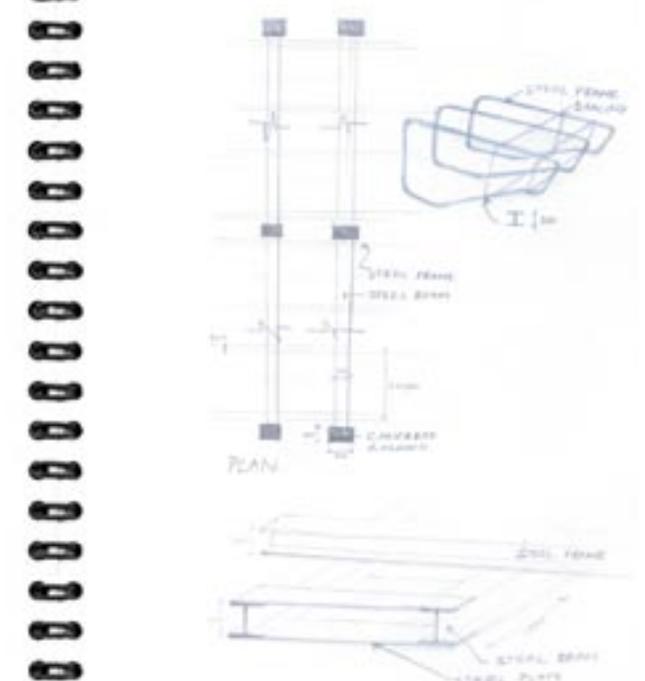
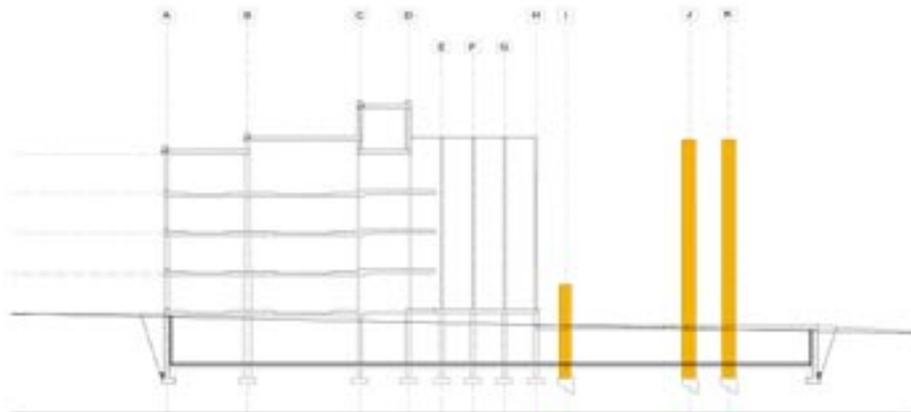
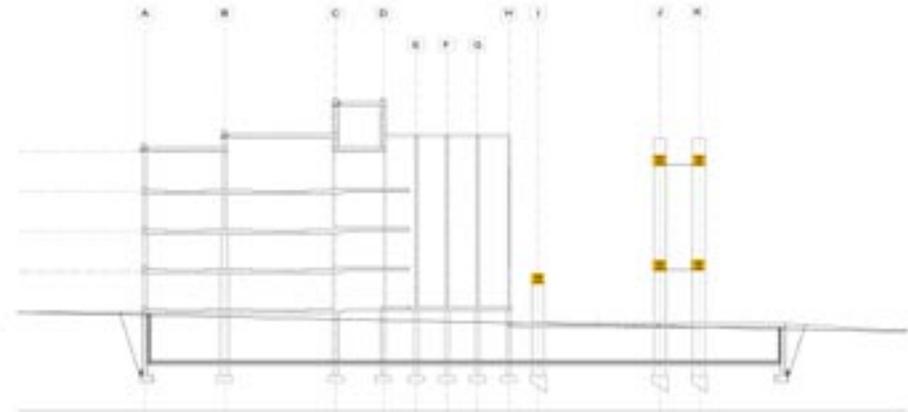


fig.6.10-6.13. Structural Exploration: Pods

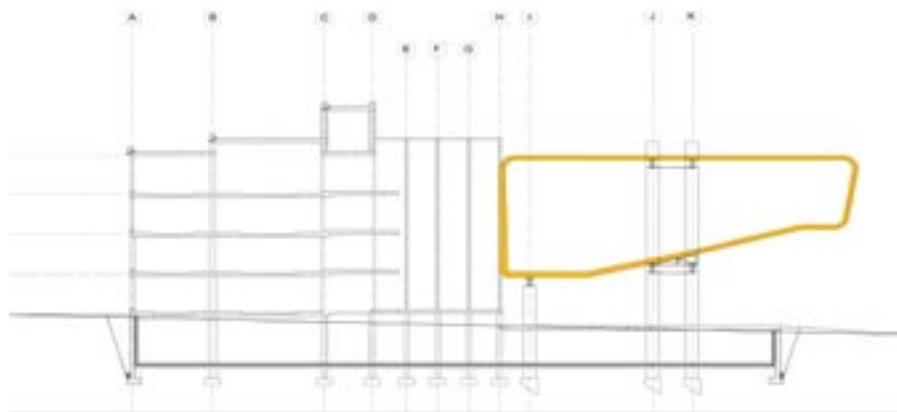




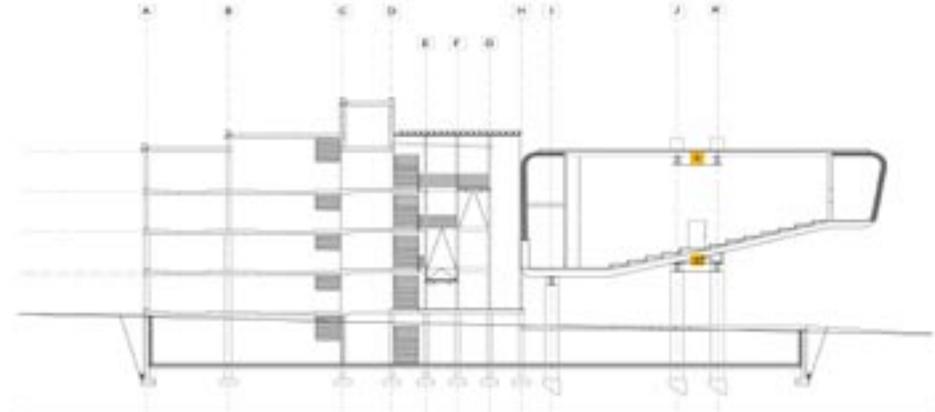
STEP 1: Reinforced concrete columns are erected.



STEP 2: Steel beams are fastened to concrete columns



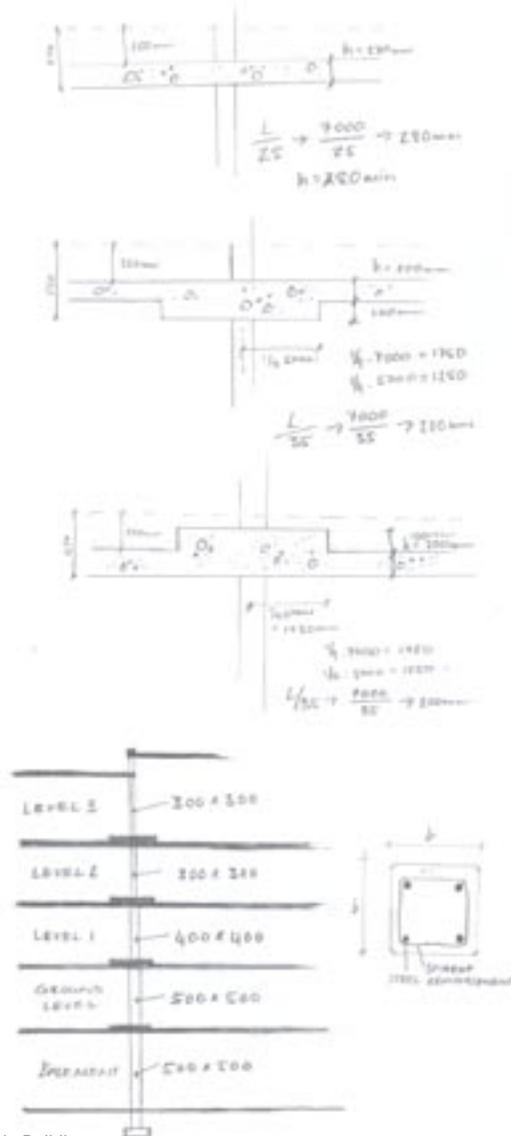
STEP 3: Steel frames are fastened to beams.



STEP 4: Bracing is fastened around frames.

fig.6.14

TECHNICAL INVESTIGATION STRUCTURE



SLABS IN MAIN BUILDING

A conventional slab should have a depth of about 280-300mm and has a recommended span of 6 - 7.5m.

Slab thickened at columns: This method is used due to the fact that the slab can be more slender than a conventional slab. Only the part of the slab that meets the column is thickened to the depth of a conventional slab. This slab has a recommended span of 7-10m.

Reverse slab with thickened columns: The strength and calculations stay the same when the slab is reversed. The decision was made to reverse it to accommodate the access floor. This option results in the smallest overall depth for the floor and therefore allows for more headroom.

COLUMNS IN MAIN BUILDING

The columns in the main building are constructed of reinforced concrete. The sizes of the columns are determined by the load it carries; therefore those on the top floors are smaller than those on the bottom floors. Sizes range from 500x500mm in the basement to 300x300mm on Level 3. This will be sufficient in carrying the heavy load of the books which has a service load value of 5kN/m².

fig.6.15. Structural Exploration: Main Building

Technical Investigation

Structure

ACS-R Regular
Climbing cycle

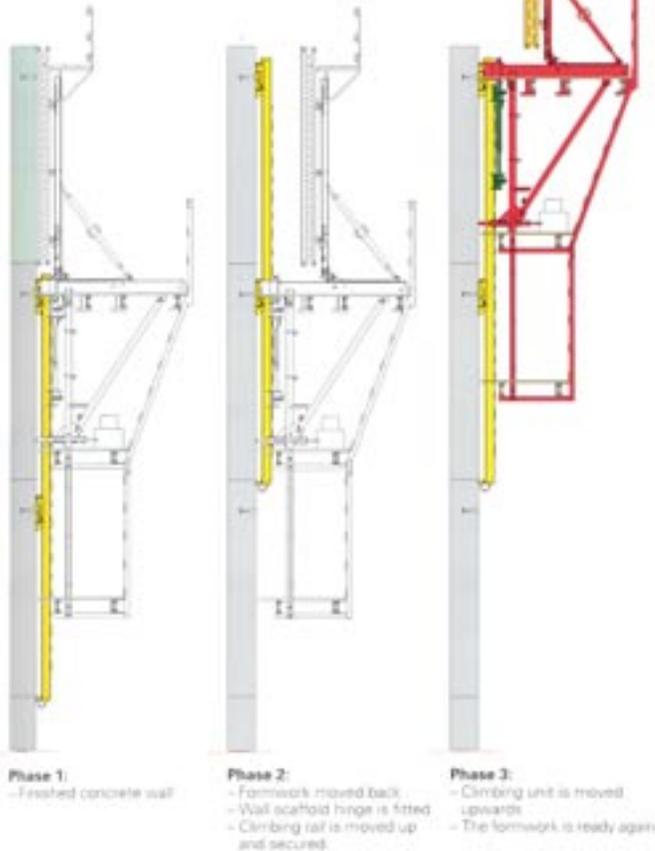


fig.6.16 & 6.17



QUATTRO column formwork 3.25 m high.
Complete with ladders and concreting platform for safe working at any height and on any cross-section.

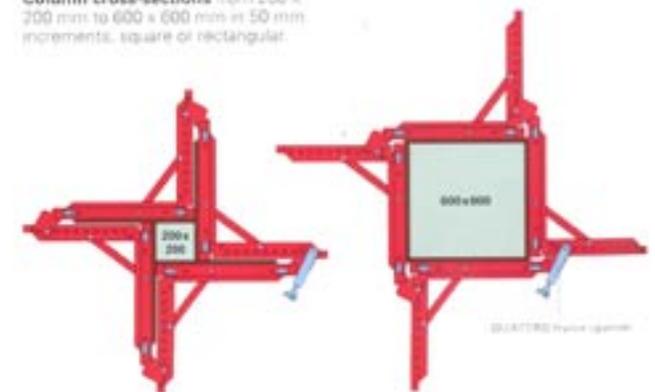
Formwork

Two formwork systems by Peri Wehahn have been explored. The first of which is the ACS (Adjustable Climbing System) which will be used for the reinforced concrete work supporting the pods. This system proves to be least time consuming and also more economic as one cladding system can be used for all columns in the pods.

The second cladding system to be used is the Quatro Cladding System. This will be used for the construction of the columns in the main building and is most economic due to the fact that it is adjustable to a variety of sizes ranging from 200mmx200mm to 600mmx600mm.

(Peri Wehahn Catalogue 2002)

Column cross-sections from 200 x 200 mm to 600 x 600 mm in 50 mm increments, square or rectangular.



Technical Investigation

Accoustics

Sound Quality

Sound quality in a building is affected by two factors, the first is the quality of the sound generated inside the building and the second is the amount of outside noise (unwanted sound) transmitted into the building.

Part of the sound is absorbed when it strikes a surface, part is deflected and part is transmitted. Soft, porous materials absorb a large amount of sound, therefore reduce the reverberation and improve sound quality inside the building. These materials include insulation materials, perforated timber, and furniture. Materials that deflect most of the sound are good insulators. These are materials with high density and thermal mass such as masonry and concrete.

The average noise level in the CBD is 75-80dB but the accepted amount of background noise in an auditorium is 45dB. This is achieved by using materials with high sound insulation values.

Auditorium & Lecture Halls

Roof: The roof of the auditoria especially should be sound insulating to block out noise of a rain- or hail storm.

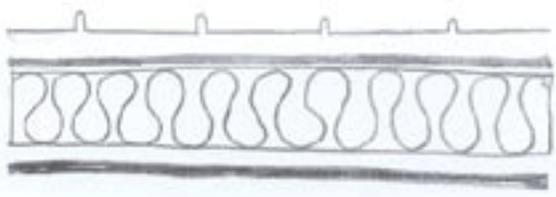
Two options were explored for the roof. (See calculations)

Shape: Parallel walls can cause sound waves to get trapped.

This will result in distortion of the sound. To avoid this, the side walls of the auditorium and lecture halls are non-parallel and open up from the speaker towards the audience.

Profile plywood acoustic board: The roof and floor are parallel to each other at the end where the speaker stands. This will

OPTION 1:

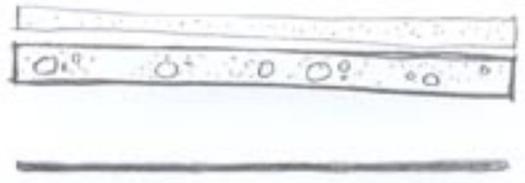


Option 1:

1mm Copper cladding:	9dB
16mm Plywood,	
230mm High Density Polyurethane Foam,	
16mm Plywood	53dB
TOTAL:	62dB

If the average noise level outside is accepted to be 80dB, Option 1 will transmit 18dB which is well within the accepted range for auditoria.

OPTION 2:



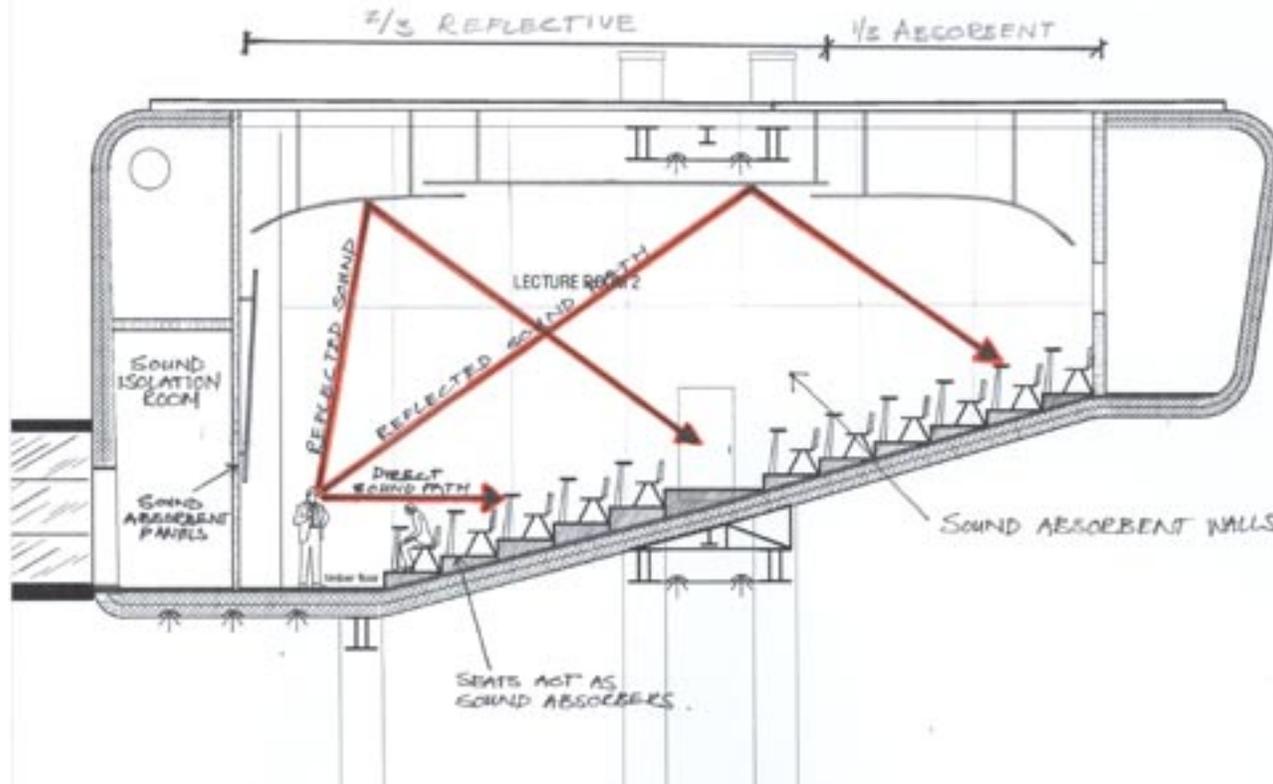
Option 2:

40mm cement mortar screed:	5dB
150mm precast concrete slab:	45dB
250mm cavity with 16mm plywood:	39dB
TOTAL:	89dB

If the average noise level outside is accepted to be 80dB, Option 2 will transmit no sound into the auditoria.

Technical Investigation

Acoustics



cause flutter echoes that could confuse the speaker. This is avoided by placing curved reflective panels above, that will reflect the sound to the audience instead of back to the speaker. The boards are fixed to a lightweight steel frame, welded to flat steel bars which in turn are bolted to the steel frames which form the structure of the pods.

Ceiling: Two thirds of the ceiling, from the speaker to the audience, is reflective so that the sound will be reflected to the audience. The back third of the ceiling is absorbent as it is not desirable for sound to reflect from here.

Walls: Apart from being non-parallel, the walls consist of a layer of high density polyurethane foam insulation with plywood panelling over.

The absorption quality of the walls are worked out as follows:

1mm Copper Cladding:	0.01 per m ²
16mm Plywood:	0.15 per m ²
230mm High Density Polyurethane Foam:	0.4 per m ²
16mm Perforated plywood:	0.15 per m ²
TOTAL:	<u>0.8 per m²</u>
(optimum for auditoria)	

Furniture: Seating and other furniture, within the auditorium and lecture halls, are chosen to be made of absorbent material. The audience also acts as sound absorbers.

Sound insulation room: The lobbies of the auditorium and lecture halls are designed to act as sound portals and are

fig.6.18. Acoustics: Pod

Technical Investigation

Accoustics

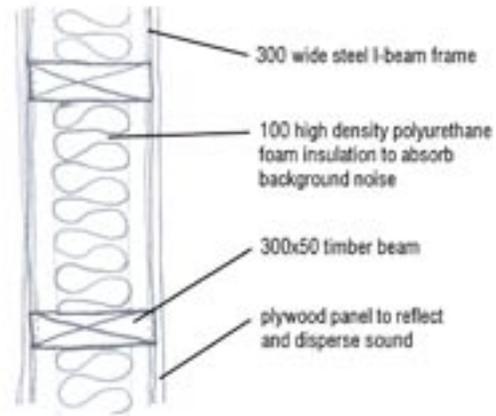
covered with sound absorbent material on the walls and ceilings.

All windows will be double-glazed for further sound insulation.

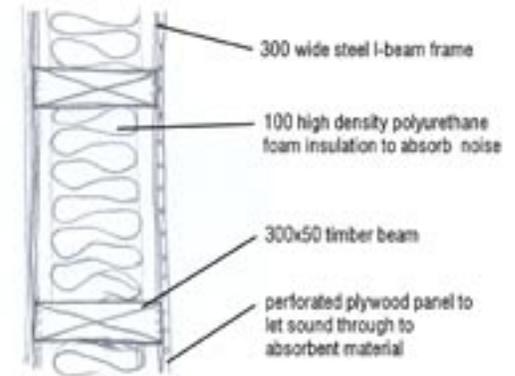
Audio Rooms

Walls: Complete sound proofing is required to avoid loud noises filtering through to the library and office space. This is done by using a 300mm concrete wall. Because of the high thermal mass of concrete, no sound will be transmitted. Absorbent panels are placed on the walls and ceilings to avoid sound distortion and flutter echoes between parallel surfaces.

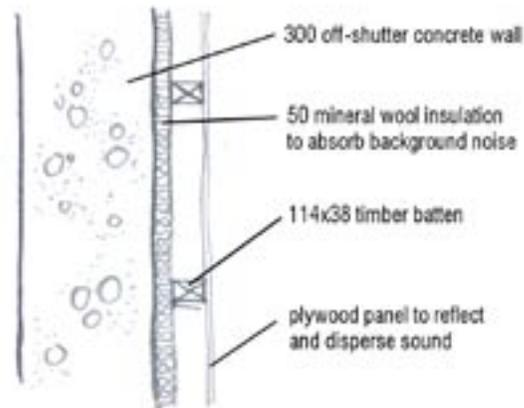
Sound isolation portals: To avoid sound pollution into the library and office space all entrances into the audio rooms are fitted with double doors and sound insulation portals. This is also done because recordings are taken within the rooms and any noises from outside could be disturbing. All windows will be double glazed for further sound insulation.



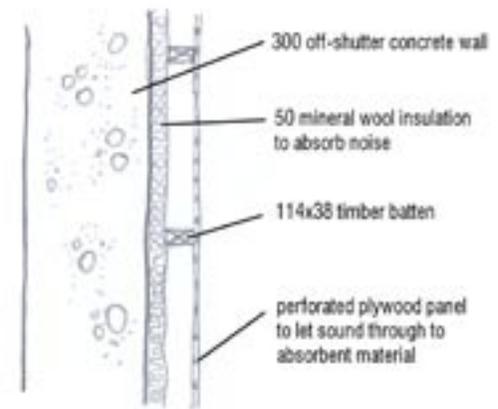
LECTURE ROOM REFLECTIVE WALL



LECTURE ROOM ABSORBENT WALL



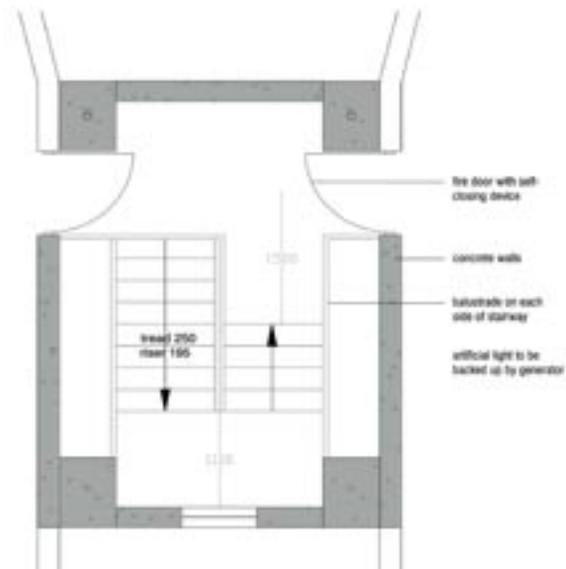
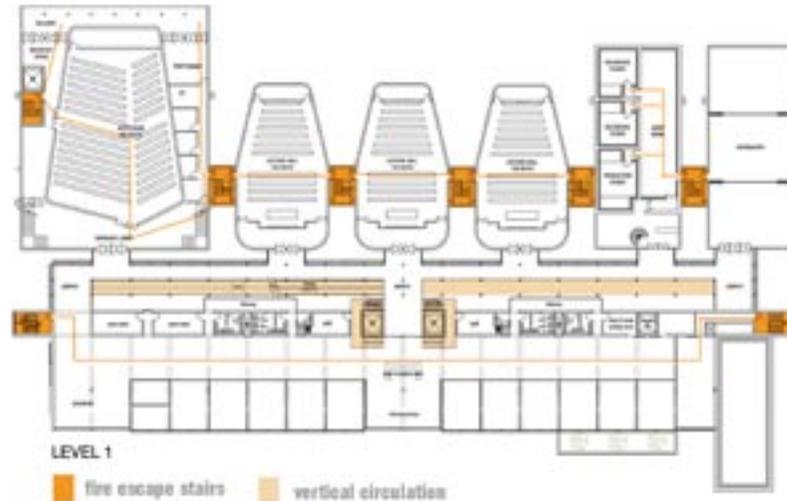
AUDIO ROOM REFLECTIVE WALL



AUDIO ROOM ABSORBENT WALL

Technical Investigation

Fire Regulations

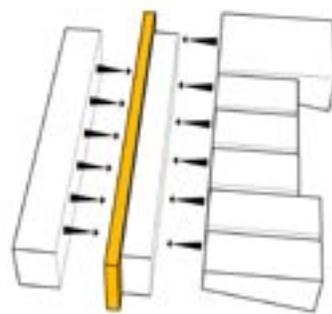


An interview was conducted with Mr A. Steyn of the Tshwane Fire Department. All structural steel used for the pods will be treated with fire proofing paint according to NBR TT7 (SABS 0400) Sufficient escape routes are provided in accordance with SABS 0400. The main building has two fire escape stairs provided, thus ensuring that the maximum travel distance to a fire escape staircase does not exceed 45 meters. Each pod is provided with two to three escape routes of which at least one is a fire escape staircase. The auditorium is provided with two separate fire escape staircases due to the amount of users. Staircases comply with the national building regulations. All fire escape routes are fitted with fire doors with self-closing devices according to SABS 1253.

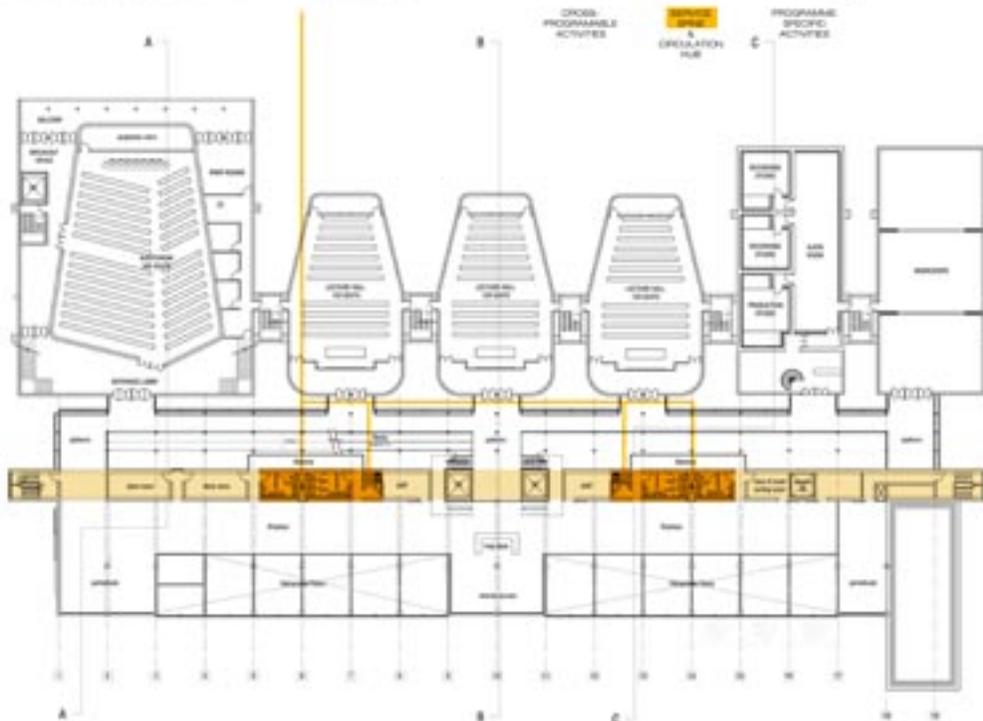
WIDTH OF ESCAPE ROUTES ACCORDING TO NBR 1253.2 (SABS 0400)	
Maximum number of Persons	Minimum width of escape route
125	1100mm
150	1400mm

*No individual escape route shall be designed for more than 150 people. Provide two separate escapes.

A sprinkler system is fitted throughout the building and fire hose reels are provided throughout the building at a rate of 1 hose reel per 500m² according to SABS 534. The concrete structure provides sufficient fire resistance according to the fire regulations. Signage will clearly mark escape routes and exits throughout the building.



CROSS-PROGRAMMABLE SERVICES
 SERVICE CORE
 PROGRAMME SPECIFIC SERVICES



services
 service core

TECHNICAL INVESTIGATION SERVICES

A service core gathers all services in a central location allowing freedom to the surrounding spaces in terms of space planning, cross-programming and improved usability. A service core also makes the building more readable and is more economic as infrastructure can be grouped together. The services act as constants for the rest of the building to refer to. The correct placement of the services allows for design opportunities and can emphasise the concept.

Sewerage System

- 1 Stack system with no more than five appliances per branch pipe.
- Stack pipes 150mm diameter
- Soil pipes 100mm diameter
- Waste pipes 50mm diameter.

Water

Water heated with solar power in service core with backup electricity. Water to be heated up in close proximity to where it will be required.

Electrical

- 1 distribution board per 2500m²
- Emergency generator for power failure and for lighting of escape routes for minimum 60 minutes

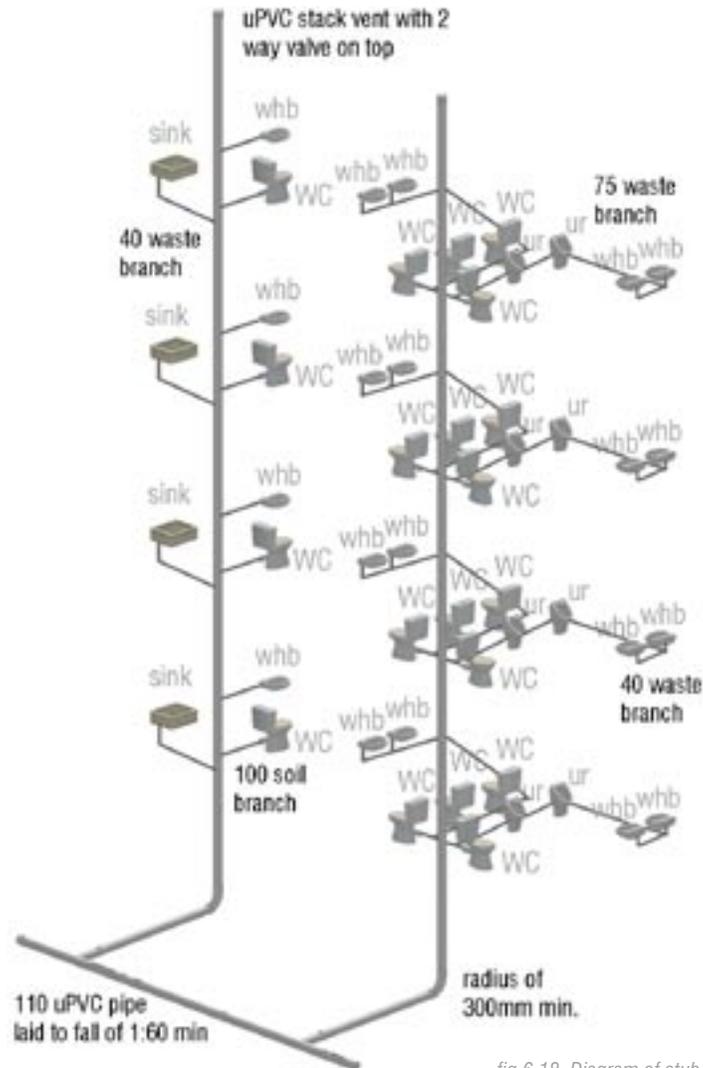


fig.6.18. Diagram of stub stack system

SEWERAGE SYSTEM

Above Ground

Single stack system where the stack serves as both the discharge and ventilation component. No more than five appliances are permitted per branch. Each waste appliance shall have a 'P' trap with a water seal of no less than 75mm.

The 2 way vent must be located minimum 2500mm above any surface used for pedestrian circulation.

A minimum radius of 300mm must be provided at the foot of the discharge stack.

Stack pipe: PVC 150mm diameter

Soil pipe: PVC 100mm diameter

Waste pipe: PVC 40mm diameter

Below Ground

The invert level at the foot of the stack may not be less than 450mm.

Drain pipes must be laid in a straight line with a minimum slope of 1:60. Rodding eyes and inspection eyes must be provided as stipulated by SABS 0400.

Technical Investigation

Ventilation

Because of the functions housed in the building, it could not rely solely on passive ventilation. The temperature in the library has to be kept constant and mechanical ventilation is required. Mechanical ventilation is required for the auditorium, lecture halls and offices to obtain optimum comfort levels because of the large volumes of people that will use them at a time. However, other passive design techniques can be used to reduce the demand on the mechanical ventilation system. These were discussed in the design investigation chapter.

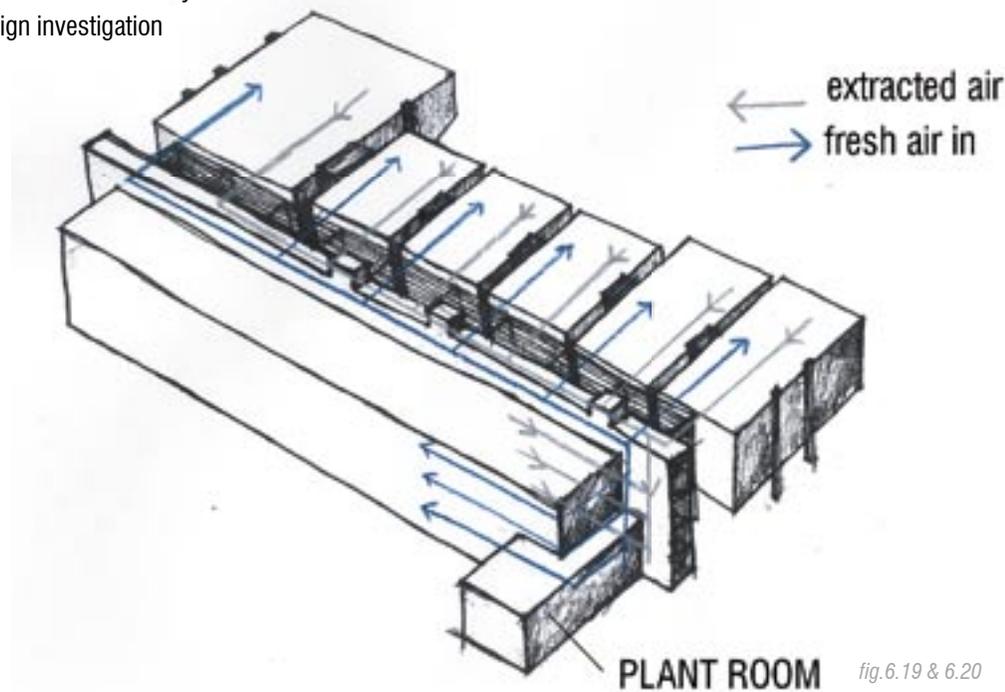


fig. 6.19 & 6.20

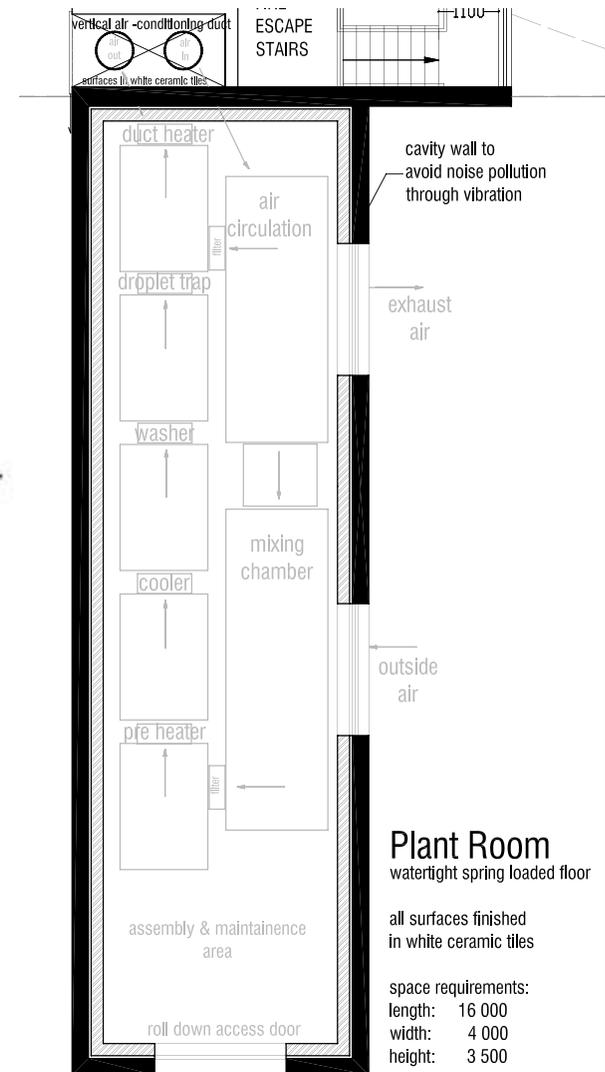




fig.6.21 & 6.22



Centre Pompidou, Paris, France. 1971-1977 by Renzo Piano and Richard Rogers. The services are placed on the outside of the building, freeing up the interior to allow for flexibility.

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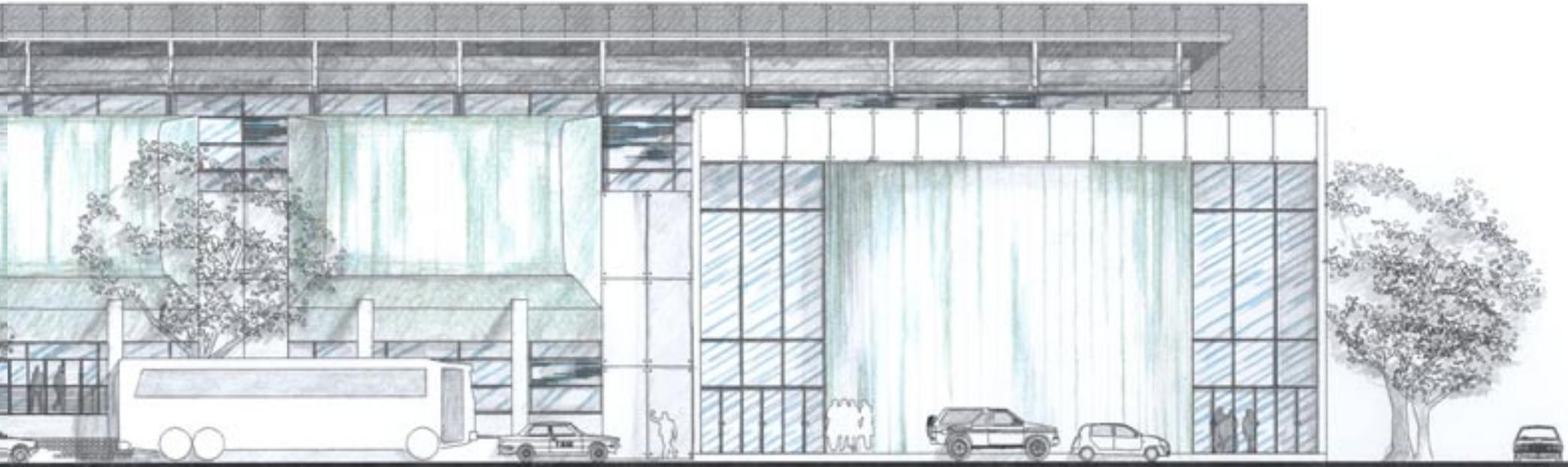
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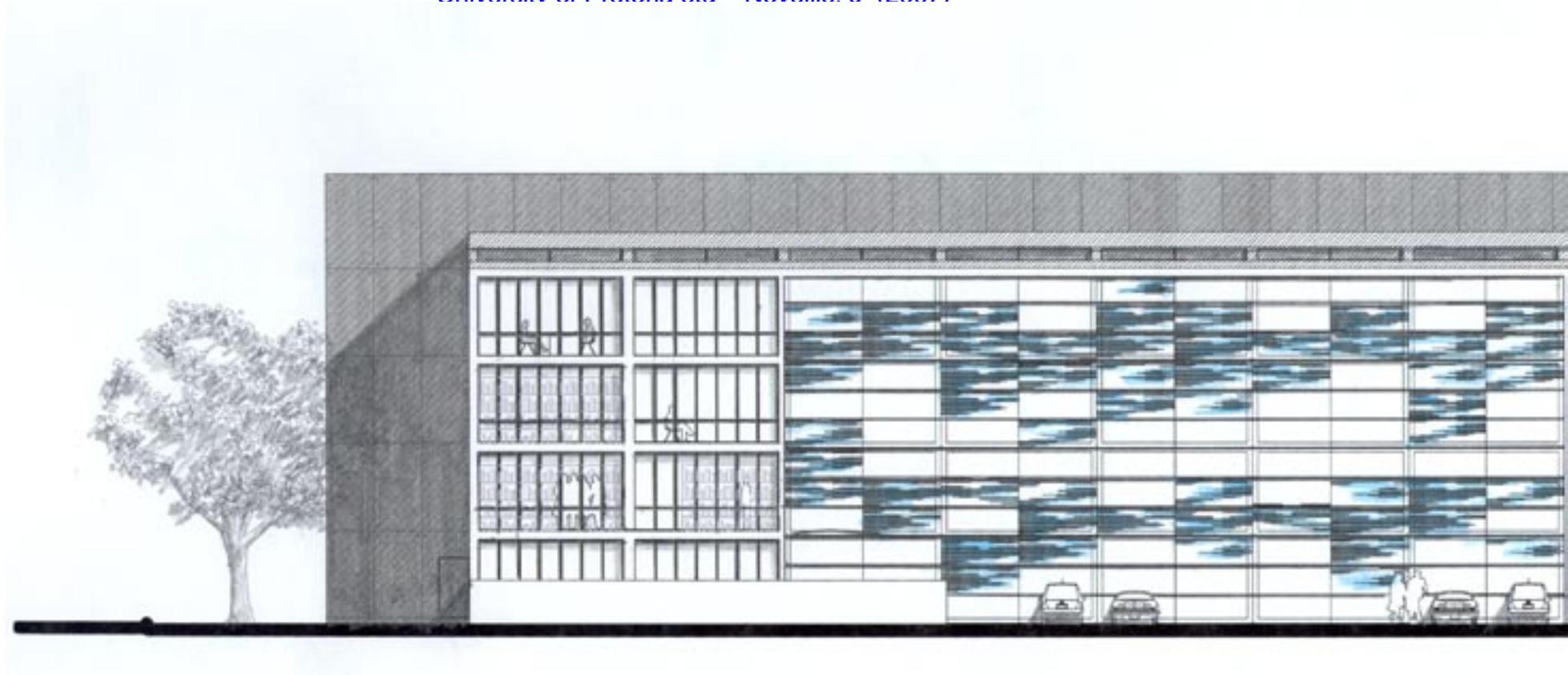


NORTH ELEVATION

The north facing side of the building houses activities to do with the spoken word. This is done to create a lively facade facing Minnaar Street and Pretorius Square encouraging passers by to interact with the building. On ground level a public open space is provided with facilities for a restaurant, picnics, exhibitions and informal trade. The series of ramps and staircases leading into the circulation hub allows for a transition from the public space into the building. Facilities leading from the circulation hub onto the northern facade include the auditorium, lecture halls, studios and workshops.

Design Proposal

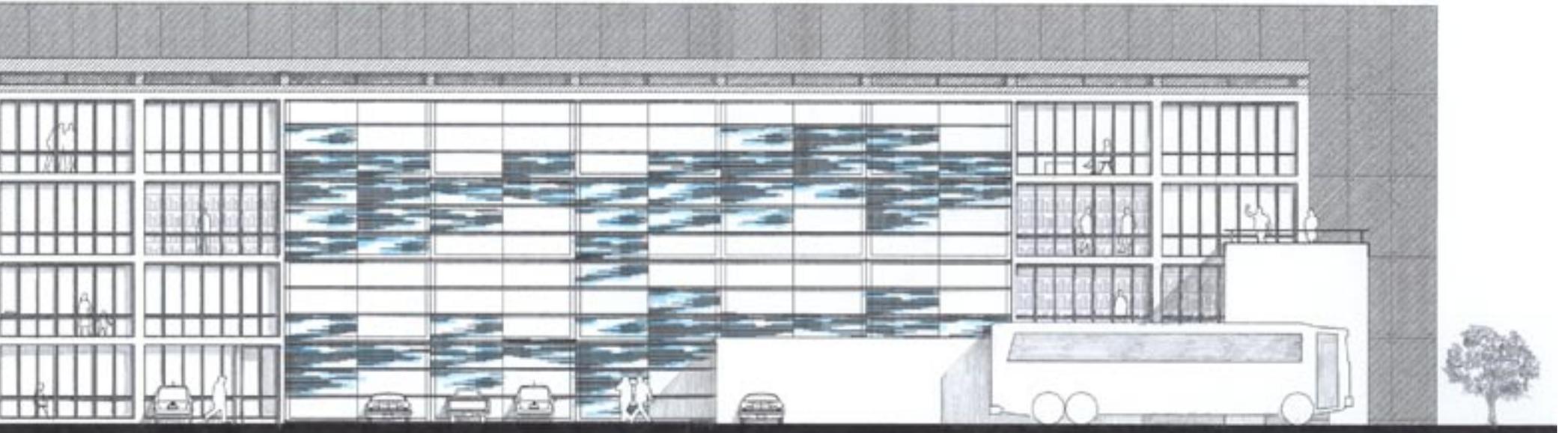




SOUTH ELEVATION

The south facing side of the building houses activities to do with the written word. These include the library and offices for researchers, academic and administrative staff. The south side of the building is quiet and is separated from the lively north side by the off-shutter concrete walls of the service core. The walls also serve as a sound barrier to ensure tranquility in the library. The south facing location is further beneficial as direct sunlight damages books but indirect natural light is ideal for reading. For this reason the facade consists of glass.

Design Proposal



Design Proposal

PUBLIC WALKWAY

Through the middle of the site, runs a public walkway allowing pedestrians to cut through the site en route from Bosman Street Station to the CBD. The walkway runs parallel to the circulation hub before branching off. This allows people to walk past the atrium and look through the glazing at the exhibitions inside. Ramps and staircases flow from the public walkway into the atrium.



fig. 6.3 Smaller walkway through the public open space past an exhibition space
112>>>

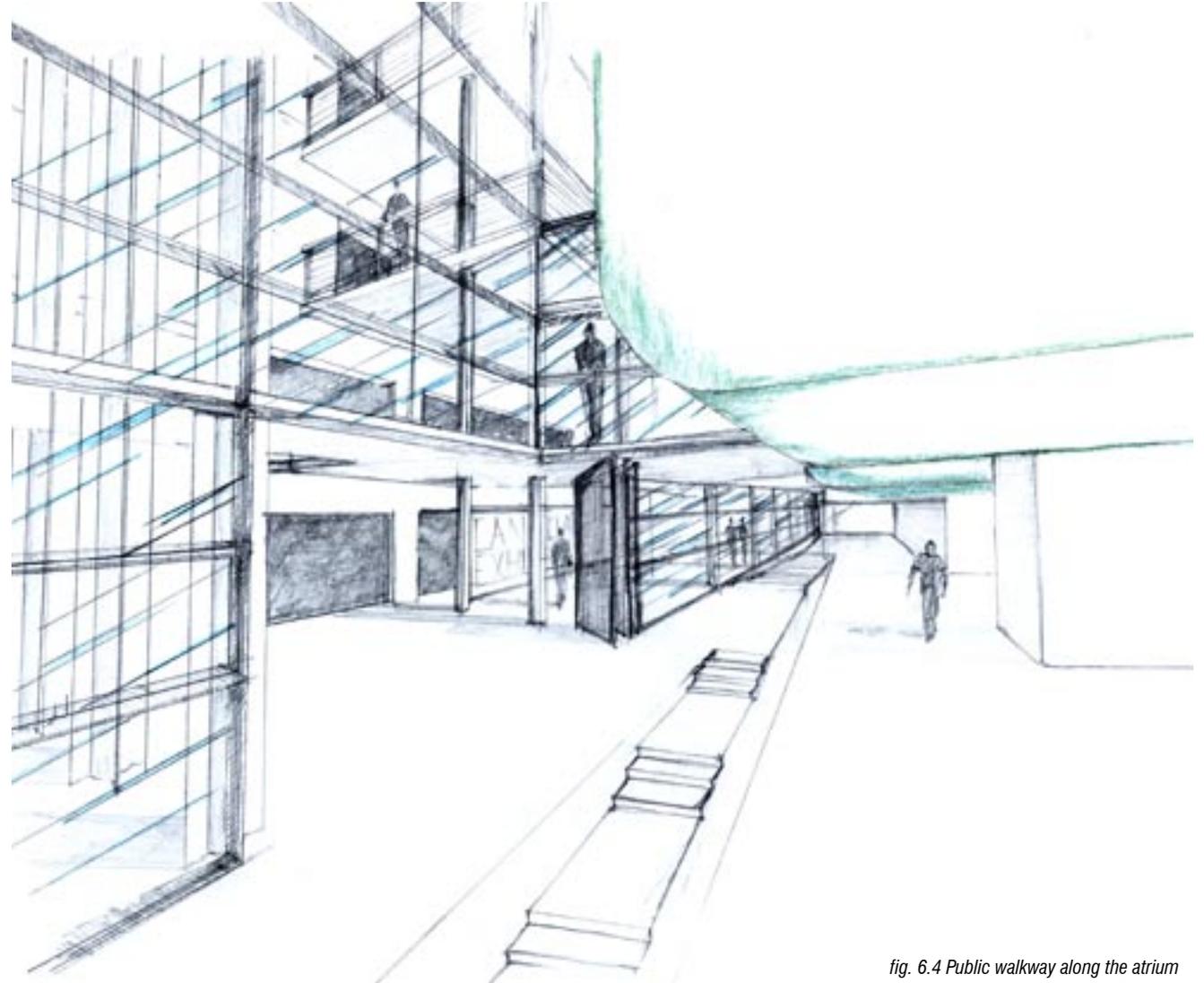


fig. 6.4 Public walkway along the atrium

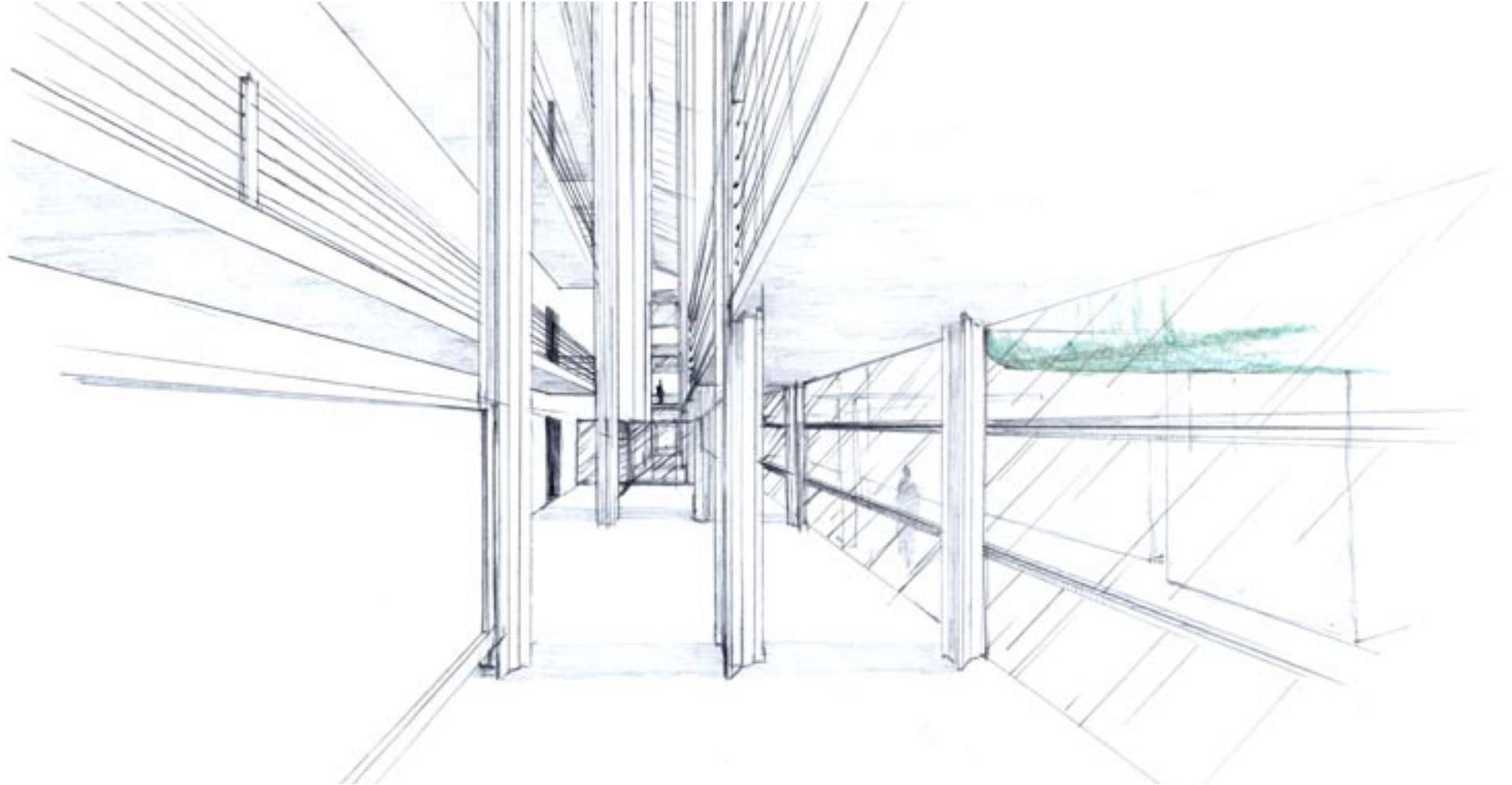


fig. 6.4 The circulation hub with exhibition space, platforms and ramps.

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In conclusion, the design and technical investigation process substantiates the aim of creating a balance between the constants and transformative elements in a building.

The design is formulated by investigating a series of connections and exchanges. These include a theoretical investigation, consideration of user requirements and context analysis. These are the strands that make up the rhizome of the design and the aim is to create a non-hierarchical dialogue between them. The result of this process gives form to the design.

Architecture cannot be separated from the network that surrounds it but should rather facilitate it, allowing it to expand. Architecture is both a strand and a rhizome. This will allow architecture to recognise and facilitate the cultural and social groups in an African context and will allow for a dialogue between them to develop.

The spatial ability of the various user groups were analysed in terms of field-dependence and field-independence. This investigation showed that different cultural and social groups use space in different manners. It is important to create a facility that will allow for a balance and a dialogue between user groups. This is done by creating areas of consistency and areas of a transformative quality. The dialogue between the two creates opportunity for interaction and unexpected occurrences.

As reflection on the dissertation, it is important to analyse the process and evaluate the success thereof.

Through the theoretical exploration, it became evident that society is becoming more diverse and space-independent in its requirements - but architecture thus far does not accommodate the trend. Apartheid city planning resulted in segregated areas, isolated by road systems, with little interaction between them. Even after the group area act was abolished, it is hard for these areas to integrate. It is the areas surrounding the CBD, where these roads interlink, where integration is most evident. The current architecture of the CBD's periphery, however, does not express this. Furthermore it is not enough for architecture to merely express the society it represents, but should also be a facility to accommodate the development of this society. For this reason the design not only allows for an integrated society, but can also be adapted to the future needs of the users. This was achieved by the following means:

Firstly, spaces of consistency were provided. These act as points of reference for the user and provide the identity of the design.

Secondly, spaces of a transformative quality are provided in relation to the constants. The transformative spaces are adaptable depending on the events they have to support. This allows the users to express themselves through their use of the space.

Lastly, these are linked with areas of interaction. This provides the opportunities for different cultural and social groups to meet and integrate.

Whilst providing spaces applicable to various user groups, the building also allows users to come into contact with each other. The building is a facility that will successfully provide for the needs of the society in its context, Pretoria.

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DESCRIPTION		SIZE	CONNECT TO	FURTHER INFO
AREA FOR DISCUSSION		University of Pretoria etd – Novellie, J (2007)		
Auditorium	1	750m ²	circulation, exhibition, break out space	300 seats. Requires translation & observation booths, prep rooms, projection rooms and its own foyer. Must be able to function independently from the rest of the building.
Lecture Halls	2	600m ²	studios, offices	100 seats each Lighting requirements: 400 lux Look at ventilation and disabled access. See services for WC requirements
Seminar Rooms	4	400m ²	studios, offices	50 seats. 2m ² per person
Meeting Rooms	6	200m ²	offices	5 meeting rooms for academic staff and 1 for the administrative offices a
AREA FOR REFLECTION				
Offices: Academic Staff		800m ²	meeting rooms, lecture halls, open spaces	Divided into the 5 categories, each with its own reception, meeting room and tea room. Lighting Requirement: 500 lux Prevent glare, natural Lighting, Ventilation, disabled access and access to escape areas. See SERVICES
Offices: Administration		100m ²	reception	
Offices: Rentable		400m ²	circulation	
African Language Media Offices		100m ²		Services in core
Translators, Editors and Interpreters		200m ²		
African Language Education Offices		100m ²		
Sound Studios		300m ²	main circulation	Lighting requirements: 400 lux Acoustic Performance: Absorb low frequency noises and flutter echoes Ventilation and disabled access.
Workshops		300m ²		
Recording Rooms		400m ²		

AREA FOR INFORMATION			University of Pretoria etd – Novellio, J. (2007)	Avoid direct sunlight - UV destroys paper. Fire protection important. User areas 20 deg C with air replacement of 20m ³ per hour per person.
Library: Books	1	600m ²	circulation, public open space	1.2m per 200 books, 1.2m between shelves, 6-7 shelves per case, 2m max height to reach. Divided into the 5 categories, each with its own help desk, photocopiers, PC's and reading rooms.
Library: Audio	1	200m ²		1m per 200 recordings?
Childrens Library		300m ²		60 users Includes play areas (inside and outside) and activity zone. Storage for activity articles.
Reading Rooms + Magazine and Newspaper Room	5	500m ²		100m ² each. Each category has a reading room for studying to be done within the library.
Study Rooms	2	400m ²	studios, lecture halls	One room with books on reserve for primary school children. One room with books on reserve for secondary school children.
Photocopy Aras	5	100m ²		20m ² each
Scan Areas	5	100m ²		20m ² each
Catalogues and PC Search	5	100m ²		20m ² each
Help desks	5	100m ²		20m ² each
Control counters	2	100m ²		Controls security and checks out books at entrance & exit.
Archive	1	300m ²		Basement or lower level. Climate control better here. Floor loading with fixed stacks: 7.5kN/m ² . With movable stacks: 12.5 kN/m ² . 18 deg C. Air circulation is important.

AREA FOR EXHIBITION	1	400m ²	Reception/Entrance	University of Pretoria etd - Novellie, J (2007)
AREA FOR INTERACTION				
Rentable retail		700m ²		
Bookstore		45m ²		
Fast Food Outlets				
Café		150-200m ² indoor 300m ² outside		For use by 60 - 75 people. Central, to be used by visitors/users of the building as well as passing trade. See SERVICES for Kitchen and WC requirements.
Public Open Space				
Small Open Spaces				20m ² each
Breakout Space				
African Language Radio Station		45m ²	In Sound Studio for Accoustic purposes	Office and Administration: 10m ² Broadcast Studio: 10m ² Production Studio: 10m ² Music Library: 5m ² Services in core. Visual link with outside public space.
Foyer and Reception	1	150-200m ²	Library	Use: Events, exhibition, waiting area Lighting level: 50-100lux, SABS 0114 Part I-1973. Allow for flexibility, orientation & disabled access.
SERVICES				
Circulation: Passages, Stairs, Ramps, Lifts				Lifts for fast movement from one aea to next and transport books. Ramps for main circulation. Stairs for emergency exits.

WCs		200m ²	In core. On each floor and separate facilities for auditorium.	WCs about 100m from each workstation. Men: 7wc, 7 urinals, 3 basins. Women: 10WC, 3 basins. Disabled and baby change facilities. <u>Library:</u> <u>Lecture Halls:</u> 90m ² Male: 2 WC, 3 Urinals, 3 WHB Female: 5 WC, 3 WHB <u>Sound Studio & Workshops:</u> Male: 2 WC, 3 Urinals, 3 WHB Female: 5 WC, 3 WHB <u>Café:</u> Male: 1WC, 2 Urinal, 1WHB Female: 3Wc, 2 WHB
Lockers & Cloak Room	1	50m ²	reception	To function with library
Additional Sanitary Facilities: Showers				Shower facilities for cleaners and in building.
Kitchettes and Common Rooms		400m ²	In core	Shared by offices. 40m ² each
Kitchens: Café		25m ²	Café, link to basement delivery & Waste Storage	Preparation Area: 14m ² Scullery: 5m ² Cold Room: 3m ² Indoor Waste Storage: 3m ² Lighting requirements: 200 lux SABS 0114: Part I - 1973 Pay attention to placement of extraction fans, ventilation and ergonomics.
Parking	150	4000m ²		
Plant Rooms		264m ²		4m x 6.75m per room. 750 1500kg/m ² machinery. Design as a room within a room for sound insulation.
Storage Rooms (Auditoriums & Offices)	20	100m ²		5m ² each
Storage Rooms (Basement incl. freezers etc.)		200m ²		
Cleaning and Security Staff				Kitchenette, Common Room, WC, WHB and showers

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