

historic [re]covery

urban [re]covery

A Cultural Heritage and Mediation Centre
at the Old Synagogue in Pretoria

for my dad
1951 - 2010

**Historic Recovery, Urban Recovery.
A cultural Heritage and Mediation Centre at
the Old Synagogue in Pretoria**

by

Shershen Naidoo

Submitted in partial fulfilment of the
requirements for the degree Master of
Architecture (Professional)

Department of Architecture. Faculty
of Engineering, Built Environment and
Information Technology

University of Pretoria

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Full dissertation title: **Historic Recovery, Urban Recovery. A Cultural Heritage and Mediation Centre at the Old Synagogue in Pretoria**

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Department: Department of Architecture
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Project summary_

Programme: Cultural Heritage and Mediation Centre
Site Description: The Old Synagogue site on Paul Kruger Street, Pretoria CBD
Client: Joint venture between the Department of Public Works, Department of Public Services and Administration, and Department of Tourism
Users: Government Officials, members of Workers Unions, Corporations, tourists, and the general public

Site location: Erf 103, Pretoria CBD
Address: 73 Paul Kruger Street, Pretoria CBD, South Africa
GPS Coordinates: 25°44'33.19"S, 28°11'17.14"E

Architectural Theoretical Premise: The investigation challenges the mainstream approach of commodification of built heritage in favour of greater public usage and accessibility traits.

Architectural Approach: Developing a contextually generated programme for the Heritage Centre which contributes towards uplifting the sites surrounding urban environment.

Research field: Heritage and Cultural Landscapes

In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree Master of Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my thesis has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.

Shershen Naidoo

TABLE OF CONTENTS

LIST OF FIGURES.....	i	3.7	SITE ANALYSIS.....	34
ABSTRACT.....	iv	3.8	SITE VIEWS.....	35
1. PREMISE		3.9	PROPOSAL	
1.1 INTRODUCTION.....	3	3.9.1	PROGRAMME.....	37
1.2 PROBLEM STATEMENT AND RESEARCH OBJECTIVES.....	5	3.9.2	CLIENT.....	38
1.3 RESEARCH METHODOLOGY.....	6	4. URBAN FRAMEWORK		
2. LITERATURE		4.1	THEORETICAL APPROACH TOWARDS ARCHITECTURE.....	41
2.1 BACKGROUND AND RATIONALE.....	9	4.2	URBAN DESIGN	
2.2 ANALYSIS OF STRUGGLE ROUTE HERITAGE SITES.....	11	4.2.1	INTRODUCTION.....	43
2.3 LITERATURE REVIEW.....	15	4.2.2	HISTORIC [RE]DISCOVERY.....	45
3. CONTEXT		4.2.3	OBJECTIVES.....	45
3.1 INTRODUCTION.....	21	4.2.4	CONTEXTUAL OPPORTUNITIES AND INTERVENTIONS.....	47
3.2 HISTORIC CHARACTER OF THE INNER CITY.....	25	4.2.5	FOOTPRINTS.....	49
3.3 HISTORIC FABRIC.....	27	4.2.6	PRAGMATIC INFLUENCES ON MASS DEVELOPMENT.....	51
3.4 PRESENT-DAY FABRIC.....	29	4.2.7	MASSING.....	53
3.5 HISTORIC SIGNIFICANCE OF THE OLD SYNAGOGUE.....	31	5. CONCEPT		
3.6 SITE SELECTION.....	33	5.1	ARRIVING AT A PARTI DIAGRAM.....	57
		5.2	THE SIGNIFICANCE OF ROUTE.....	59

Fig. a_ Old Synagogue

5.3	CASE STUDY: LILIESLEAF LIBERATION CENTRE.....	61	7.1.7	RHEINZINK.....	104
5.4	CASE STUDY: HECTOR PIETERSON MEMORIAL MUSEUM.....	63	7.1.8	INSULATION.....	104
5.5	CONCEPTUAL DEVELOPMENT.....	65	7.1.9	LOUVERED ROOF.....	105
6.	DESIGN		7.2	SERVICES	
6.1	FORM DEVELOPMENT AND SPATIAL STRUCTURE		7.2.1	CIRCULATION.....	107
6.1.1	STEREOTOMIC.....	81	7.2.2	RAINWATER COLLECTION.....	108
6.1.2	TECTONIC.....	82	7.2.3	NATURAL LIGHTING.....	110
6.1.3	FLOORS AND SERVANT SPACES.....	83	7.2.4	GEO THERMAL EXCHANGE SYSTEM...	111
6.1.4	SUB-STRUCTURE.....	84	8.	REFERENCES	
6.1.5	DIALOGUE AND ENCLOSURE.....	85	8.1	REFERENCES.....	119
6.1.6	FLUIDITY AND RHYTHM.....	86	9.	APPENDICES	
7.	TECHNICAL DEVELOPMENT		9.1	INTERVIEW WITH RABBI GIDEON FOX OF PRETORIA HEBREW CONGREGATION.....	123
7.1	MATERIALS AND BUILDING COMPOSITION		9.2	RAINWATER HARVESTING CALCULATIONS.....	125
7.1.1	CONCRETE STRUCTURE.....	95	9.3	DESIGN PRESENTATION DRAWINGS..	127
7.1.2	MILD STEEL STRUCTURE.....	97	9.4	CONSTRUCTION PRESENTATION DRAWINGS.....	135
7.1.3	FLOORS.....	99	9.5	EXHIBITION.....	145
7.1.4	CLADDING.....	101			
7.1.5	BAMBOO.....	103			
7.1.6	GLASS.....	103			

List of figures

- Fig. a_ Old Synagogue: image by author
 Fig. b_ Parti diagram: image by author
 Fig. 1_ Current condition of the Old Synagogue: image by author
 Fig. 2_ Current condition of Old Synagogue: image by author
 Fig. 3_ Liberation Struggle sites in Gauteng: image by author
 Fig. 4_ Holding cells at the Old Synagogue: image by author
 Fig. 5_ Nelson Mandela on Robben Island, available at <http://www.apartheidmuseum.org/exhibition/mandela/theme04>
 Fig. 6_ February 1957 - Treason Trial protests, available at Baileys African History Archive
 Fig. 7_ Current condition of Old Synagogue: image by author
 Fig. 8_ Photo montage of Liliesleaf liberation centre by author
 Fig. 9_ Context exploration by author
 Fig. 10_ Photo montage of the Constitutional Court by author
 Fig. 11_ Context exploration by author
 Fig. 12_ Photo montage of the Hector Pieterse Memorial Museum by author
 Fig. 13_ Context exploration by author
 Fig. 14_ Photo montage of the Apartheid Museum by author
 Fig. 15_ Context exploration by author
 Fig. 16_ Aalto's relationship between nature and the man-made: image by author
 Fig. 17_ Site locality by author
 Fig. 18_ Study area aerial photograph, image from Tshwane GIS and street maps, available at <http://www.tshwane.gov.za/streetmaps.cfm>
 Fig. 19_ Figure-ground study of urban context by author
 Fig. 20_ Overlaid hierarchies by author
 Fig. 21_ Birds-eye view of urban context, available at <http://www.googleearth.com/pretoria>, adapted by author
 Fig. 22_ Paul Kruger Street in 1904, author unknown, available from the Van der Waal Collection, University of Pretoria, Merensky Library, Africana section
 Fig. 23_ Paul Kruger Street in the 1930's, author unknown, available from the Van der Waal Collection, University of Pretoria, Merensky Library, Africana section
 Fig. 24_ Historic water furrows: image by author
 Fig. 25_ Street map showing tram line network in 1936, available from the Africana collection, University of Pretoria, Merensky Library
 Fig. 26_ Historic street section by author
 Fig. 27_ River map by author
 Fig. 28_ Panagos building: image by author
 Fig. 29_ Paul Kruger Street: image by author
 Fig. 30_ Paul Kruger Street: image by author
 Fig. 31_ Site aerial photograph, available at <http://www.googleearth.com/pretoria>, adapted by author
 Fig. 32_ Photo montage of surrounding context by author
 Fig. 33_ Site aerial photograph, available at <http://www.googleearth.com/pretoria>, adapted by author
 Fig. 34_ Photo montage of surrounding context by author
 Fig. 35_ The Old Synagogue – a place of worship, author unknown, available from the Van der Waal Collection, University of Pretoria, Merensky Library, Africana section
 Fig. 36_ The Old Synagogue's original western façade: image by Nigel Vos and Associates
 Fig. 37_ Supreme Court changes to western façade: image by author
 Fig. 38_ Mandela addresses crowd outside Old Synagogue: available from Drum Social Histories Collection, Baileys African History Archive
 Fig. 39_ Study area movement patterns: captured by author
 Fig. 40_ Impressionistic context sketch by author
 Fig. 41_ Impressionistic context sketch by author
 Fig. 42_ Impressionistic context sketch by author
 Fig. 43_ Site analysis by author
 Fig. 44_ Context data collection: captured by author
 Fig. 45_ Context photo montage by author
 Fig. 46_ Context photo montage by author
 Fig. 47_ Site mediates between the law precinct and government department precinct: sketch by author
 Fig. 48_ Culture of strike and protest action in South Africa: photo montage by author
 Fig. 49_ Figure-ground of Pretoria, image adapted by author
 Fig. 50_ Emphasis on the building volume: sketch by author
 Fig. 51_ Emphasis on the spaces which the buildings define: sketch by author
 Fig. 52_ Problems within study area: image by author
 Fig. 53_ Framework proposal aerial photo, available at <http://www.googleearth.com/pretoria>, adapted by author
 Fig. 54_ Opportunities within study area: image by

author

- Fig. 55_ Building footprint development: image by author
 Fig. 56_ Mass development: image by author
 Fig. 57_ Urban design massing: image by author
 Fig. 58_ The significance of movement through the Old Synagogue: image by author
 Fig. 59_ The Old Synagogue in 1958 and today: Photo montage by author
 Fig. 60_ Parti diagram development: Sketch by author
 Fig. 61_ Nelson Mandela journeying out of the Old Synagogue triumphantly after the Treason Trials: image by author
 Fig. 62_ Investigations into movement in and around the Old Synagogue: sketch by author
 Fig. 63_ Site views: photo montage by author
 Fig. 64_ Site layout with route of exploration: sketch by author
 Fig. 65_ Site layout with route of exploration: sketch by author
 Fig. 66_ Site views_ photo montage by author
 Fig. 67_ The Old Synagogue: relationship between facade and plan: image by Nigel Vos and Associates
 Fig. 68_ Pragmatic site layout: sketch by author
 Fig. 69_ Parti diagram: sketch by author
 Fig. 70_ Relationship between concept and site: sketch by author
 Fig. 71_ Spatial thresholds: sketch by author
 Fig. 72_ Spatial structuring: sketch by author
 Fig. 73_ Movement: sketch by author
 Fig. 74_ Exhibition spaces: sketch by author
 Fig. 75_ Structural relationship: sketch by author
 Fig. 76_ Sectional order: sketch by author

- Fig. 77_ Sun path: sketch by author
 Fig. 78_ Ventilation strategy: sketch by author
 Fig. 79_ Concept sketch: image by author
 Fig. 80_ Existing site layout: image by author
 Fig. 81_ Proposed site layout: image by author
 Fig. 82_ Stereotomic: image by author
 Fig. 83_ Tectonic: image by author
 Fig. 84_ Floors and servant spaces: image by author
 Fig. 85_ Sub-structure: image by author
 Fig. 86_ Dialogue and enclosure: image by author
 Fig. 87_ Fluidity and rhythm: image by author
 Fig. 88_ Isometric 1: image by author
 Fig. 89_ Site layout plan: image by author
 Fig. 90_ Ground floor plan, plan configuration A: image by author
 Fig. 91_ Plan configuration B: image by author
 Fig. 92_ Plan configuration C: image by author
 Fig. 93_ First floor plan: image by author
 Fig. 94_ Second floor plan: image by author
 Fig. 95_ Structural concept: image by author
 Fig. 96_ Exploded and assembled views of the concrete structure: image by author
 Fig. 97_ Materiality: photo montage by author
 Fig. 98_ Exploded and assembled views of the mild steel structures: image by author
 Fig. 99_ Typical steel structure assembly: image by author
 Fig. 100_ Concrete structure: image by author
 Fig. 101_ Interwoven structures: image by author
 Fig. 102_ Exploded and assembled views of hollow core floor assembly: image by author
 Fig. 103_ Isometric section A: image by author
 Fig. 104_ Exploded and assembled views of the

- buildings cladding components: image by author
 Fig. 105_ Isometric section B: image by author
 Fig. 106_ Rheinzink applications: photo montage by author
 Fig. 107_ Strand woven bamboo flooring, available at <http://www.flooringcn.com/images/ad36.jpg>
 Fig. 108_ Bamboo clad Rantilla residence, available at <http://gliving.com/wp-content/uploads/2009/04/rantilla-residence-01.jpg>
 Fig. 109_ Exploded and assembled views of the buildings louvered roof installation: image by author
 Fig. 110_ Isometric section C: image by author
 Fig. 111_ Ground floor: image by author
 Fig. 112_ First floor: image by author
 Fig. 113_ Rainwater harvesting perspective section: image by author
 Fig. 114_ Birds eye view: image by author
 Fig. 115_ Sun angles and natural lighting: image by author
 Fig. 116_ Diagram of Geothermal heating process: image by author
 Fig. 117_ Airflow diagram: image by author
 Fig. 118_ Isometric 2: image by author
 Fig. 119_ Section A-A: image by author
 Fig. 120_ Section B-B: image by author
 Fig. 121_ Internal perspective: image by author
 Fig. 122_ Restored impression of the Old Synagogue by Nigel Vos and Associates. Adapted by author
 Fig. 123_ Restored impression of the Old Synagogue by Nigel Vos and Associates. Adapted by author

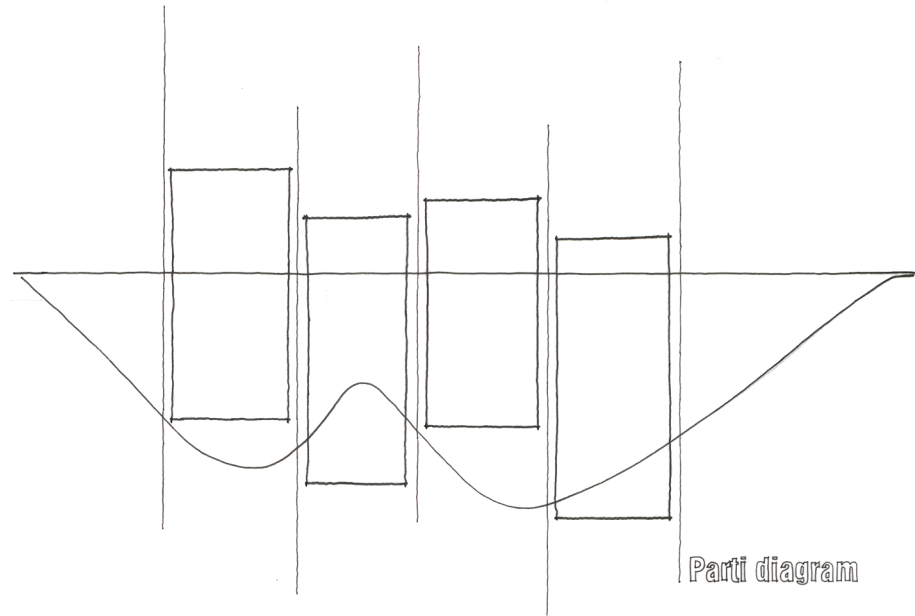


Fig. b_ Parti diagram

Abstract_

2011 marked the fifty years anniversary of the Treason Trials at the Old Synagogue, in Pretoria, South Africa. The trial was a symbolic victory for the Liberation Movement in their fight against an oppressive apartheid regime. Today, with freedom a reality, Liberation Struggle Heritage Sites have surfaced throughout the country with the purpose of commemorating the multitude of events which occurred on the path to liberation. The purpose of this research is to generate a contextual response to the challenge of commemorating and rejuvenating the currently abandoned Old Synagogue. This study investigates the manner in which Liberation Struggle Heritage Sites are being commemorated. The results will assist heritage practitioners to ascertain

whether the current trends in the application of heritage conservation and commemoration strategies make meaningful contributions towards local communities. An empirical research method of visiting Liberation Struggle Heritage Sites in Gauteng was conducted as a means of primary data collection. The findings indicate that these sites display weak accessibility traits, and do not engage with their surrounding context in manner which stimulates socio-economic and political growth. The design project aims to initiate programme as a means of commemorating and rejuvenating the Old Synagogue in a contextually appropriate manner. The prerequisites are that the programme should respect, liberate, and celebrate the history and heritage of the

Old Synagogue together with the surrounding buildings of heritage value. The design proposal is a Heritage and Mediation Centre geared towards public utility as a place to gather, learn, and retreat within Pretoria's historic inner city.

CHAPTER 01

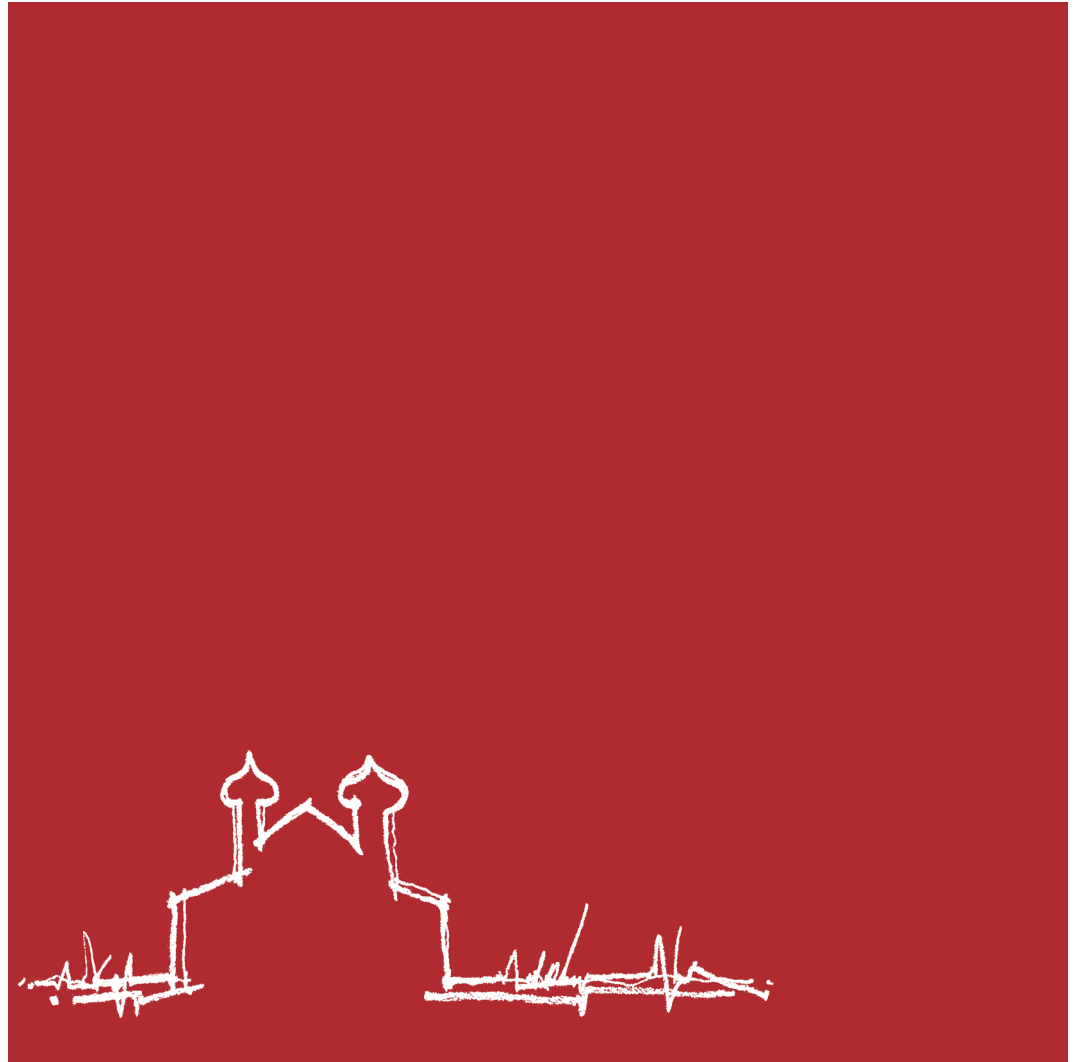


Fig. 01_ Current condition of the Old Synagogue



PREMISE

1.1 Introduction_

Even before the doors of the Old Synagogue opened on the morning of 29 March 1961, the day of the long-anticipated verdict in the Treason Trial, a crowd of supporters and press people jostled to get inside. Hundreds were turned away. When the judges brought the court to order, the visitors' gallery and the press bench were packed. Moments after Justice Rumpff pounded his gavel, the Crown made an extraordinary application to change the indictment. This was the fifty-ninth minute of the eleventh hour, and it was two years too late.

Nelson Rolihlahla Mandela, Long walk to freedom. (1995:307)

Fifty years after this momentous day, the tension, anticipation, and melancholy of Nelson Mandela's words are still emotively etched in the landscape of South African History. The Treason Trial ended in victory for the Liberation Movement and enshrined this day at the Old Synagogue in the history books of South Africa. However the legacy of this monument far precedes the 29th March 1961 and it still holds social, contextual, and historic significance today.

The theme of this study is based on uncovering the historic events which occurred in the northern portion of Pretoria's inner city, and at the Old Jewish Synagogue on Paul Kruger Street in particular. The purpose of which is to establish a

means of rejuvenating and commemorating the (currently abandoned) Old Synagogue in a manner which contributes to the uplifting of its urban environment. This will be accomplished primarily in three ways, namely:

- celebrating its significance as the city's first Synagogue in the Byzantine style,
- revealing the role the building played in South Africa's liberation struggle, and
- addressing the challenges of incorporating this "National Monument" (Buntman, F. & Buntman, B. 2010:186) into a South African Liberation Struggle Heritage Centre.

Since the inception of South Africa's democracy in 1994 there has been a growing movement towards commemorating places of historic importance in the liberation struggle. Sabine Marschall, the coordinator of the Cultural and Heritage Tourism Programme at the University of KwaZulu-Natal, states that

Since the advent of the post-apartheid period, the country has been fascinated – if not obsessed – with the identification, celebration, evaluation, reassessment and not least, commodification of heritage.

(Marschall, 2005:103)

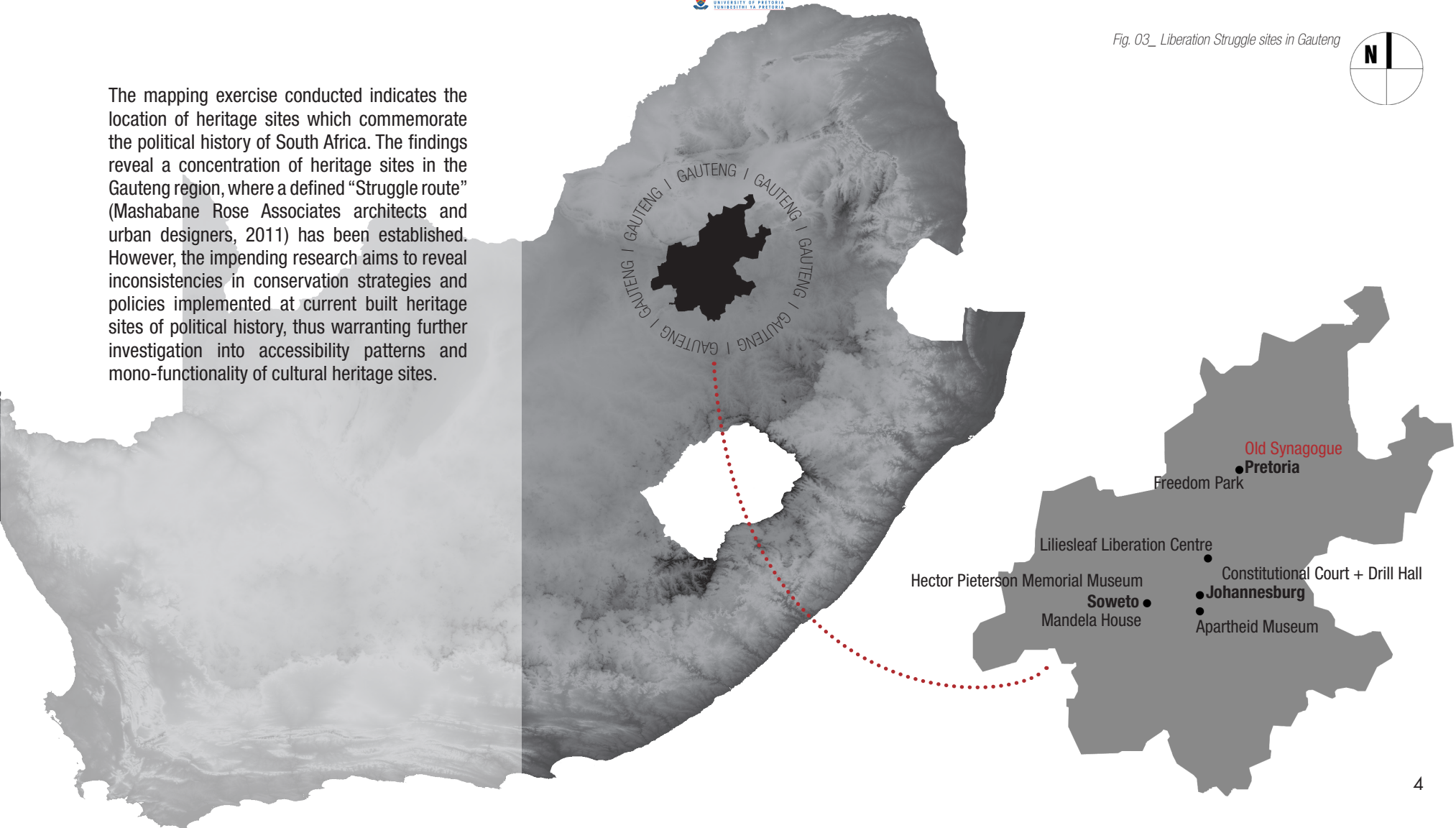


Fig. 02_ Current condition of Old Synagogue

Fig. 03_ Liberation Struggle sites in Gauteng



The mapping exercise conducted indicates the location of heritage sites which commemorate the political history of South Africa. The findings reveal a concentration of heritage sites in the Gauteng region, where a defined “Struggle route” (Mashabane Rose Associates architects and urban designers, 2011) has been established. However, the impending research aims to reveal inconsistencies in conservation strategies and policies implemented at current built heritage sites of political history, thus warranting further investigation into accessibility patterns and mono-functionality of cultural heritage sites.



1.2 Problem statement and Research objectives

The purpose of this study is to determine whether current trends in the application of heritage conservation strategies make meaningful contributions towards empowering local communities (socially, economically, and politically) and encouraging human development. The study also seeks to identify an approach that guides the design process towards creating a contextually appropriate proposal for the Old Synagogue as the focal point of a Liberation Struggle Heritage Centre.

More specifically, the study aims to achieve the following specific research objectives:

- To determine whether current trends in the application of heritage conservation strategies make meaningful contributions towards empowering local communities through the analysis of Struggle Route Heritage Sites (see sub-chapter 2.2 / pages 11-14 for more detail).
- To review the most recent literature and case studies to identify an approach that guides the design process towards creating a contextually appropriate commemorative proposal for the Old Synagogue (see sub-chapter 2.3 / pages 15-18, and sub-chapter 5.3 / pages 61-64 for more detail).
- To compile a body of work aimed at revealing the historic layers of the Old Synagogue's broader context in an effort to enrich the monuments surrounding urban environment (see sub-chapters 3.2 and 3.3 / pages 25 -28 for more detail).



Fig. 04_ Holding cells at the Old Synagogue

1.3 Research methodology_

The research methodologies utilised in this study include a combination of empirical and academic research methods. Contextual data collection based on the current and historic condition of the Old Synagogue was conducted both practically and through the study of literature.

- Context visits were carried out strategically on weekdays during the mid-morning (off-peak) and between 1pm and 5pm (approaching after school towards the end of the working day) to analyse usage and movement patterns around site. Midday weekend visits were also conducted to gather further data.
- Literature studies include library, archive, and University of Pretoria internet based E-Resource searches conducted on a continual basis in an effort to supplement the author's data collection on the Old Synagogue and its surrounding urban, social, and historic context.

Practical interviews afford the author an opportunity to gain primary data that is potentially completely original to this dissertation. Interviews include:

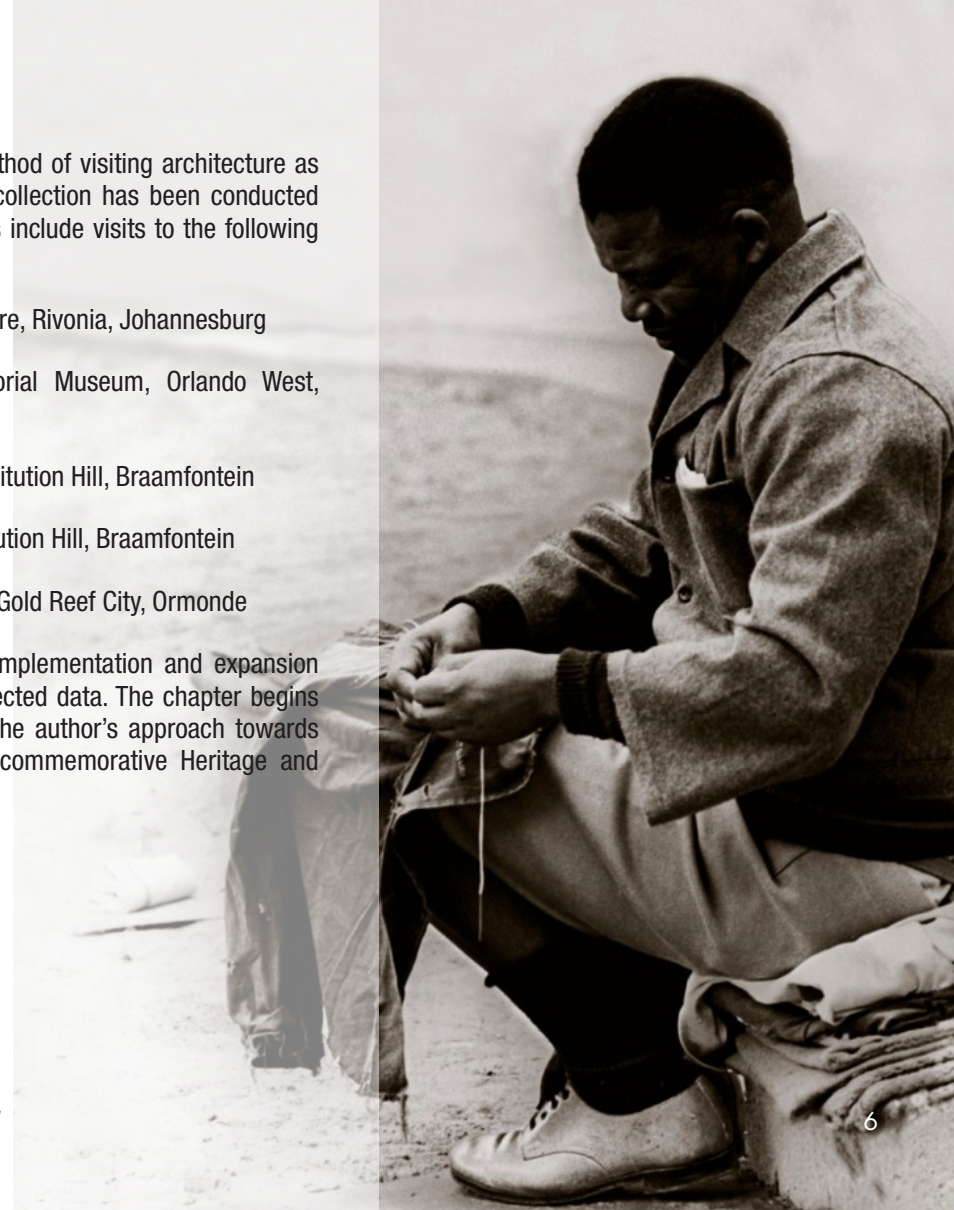
- A meeting with Rabbi Gideon Fox of the Pretoria Hebrew Congregation [PHC] to research Jewish culture and the spiritual and ritual usage patterns of the Old Synagogue when it was still a house of worship. The meeting included a guided tour of PHC's Synagogue by Rabbi Fox. Refer to appendix 1 for questionnaire and answers.

The empirical research method of visiting architecture as a means of primary data collection has been conducted by the author. Case studies include visits to the following centres:

- Liliesleaf Liberation Centre, Rivonia, Johannesburg
- Hector Pieterse Memorial Museum, Orlando West, Soweto
- Constitution Court, Constitution Hill, Braamfontein
- Women's Prison, Constitution Hill, Braamfontein
- The Apartheid Museum, Gold Reef City, Ormonde

Chapter two initiates the implementation and expansion of the aforementioned collected data. The chapter begins with the rationale behind the author's approach towards realising the design of a commemorative Heritage and Mediation Centre.

Fig. 05_ Nelson mandela on Robben Island



CHAPTER 02

Fig. 06_ February 1957 - Treason Trial protests





LITERATURE

2.1 Background and rationale_

This section is a brief introduction to the three significant stages in the lifespan of the Old Synagogue thus far. The purpose is to establish a primer for the historic building's proposed fourth and culminating stage as a National Heritage Site. Fran and Barbara Buntman, co-authors of *'Old Synagogue' and Apartheid Court: Constructing a South African Heritage Site* (2010:183), assert that the Old Synagogue is an emerging heritage site, with the mandate of commemorating and celebrating the history of this National Monument.

For the purposes of this research document the author will work under the assumption that the Old Synagogue has been upgraded to a National Heritage Resource 'Grade 1' thereby elevating the building to a National Heritage Site, according to the National Heritage Resources Act of 1999.



Fig. 07_ Current condition of Old Synagogue

The Jewish origins of the Old Synagogue trace back to the first half of the 20th century where the building facilitated the spiritual needs and congregational growth of Pretoria's Hebrew community for over fifty years. The transition from a religious house of worship to an apartheid court of law was a significant turning point in the history of the building and the political history of South Africa. The historic Treason Trials (to name only one of the important court cases) which took place at the Old Synagogue played a crucial role in the Liberation Struggle. The building has been subsequently abandoned and is currently in a state of disrepair and degradation which one can argue is indicative of the current state of the Old Synagogue's inner city context.

The following questions could be posed in response to the current condition of the Old Synagogue: Firstly, why is this important? For example: the Drill Hall in Johannesburg's inner city was extensively damaged in two fires during 2000 and 2001 (Johannesburg Development Agency, 2011). The Men's prison, Women's prison and temporary holding cells on Constitution Hill, Braamfontein, Johannesburg bore the brunt of tremendous neglect. However, both National Heritage Sites have been sufficiently rejuvenated and contribute towards the growth and sustenance of South Africa's tourism market. According to Marschall (2005:107), heritage tourism contributes towards economic growth, development, and poverty alleviation.

Therefore, naturally the second question would be: Does the Old Synagogue have the potential to do the same, and furthermore, how will the process of commemorating the Old Synagogue as a National Heritage Site make a unique contribution to the heritage landscape of South Africa?

This dissertation aims to respond to these questions, in addition, the current method of capturing and communicating the historic significance of a built heritage site (particularly in the politically historic context of South Africa) is also being questioned. The following analysis of Struggle Route Heritage Sites and the literature study thereafter are centred on developing an approach to heritage initiatives which respond with impetus towards broader contextual issues. Moreover, this investigation challenges the mainstream approach of commodification of built heritage in favour of greater and more diverse public usage and accessibility traits.

2.2 Analysis of Struggle Route Heritage Sites

The primary sources for this section are the Struggle Route Heritage Sites. These commemorative structures have been researched through either/or on-site analysis, journal reviews, and other media reports in which current public and academic debates are tabled. The purpose of this study is to assess the relationship between the Struggle Route Heritage Sites and their immediate context based on the following criteria:

- public accessibility / freedom of access,
- level of engagement with surrounding context, and
- inclusion of multi-functional facilities. If any, are they beneficial to the community?

In order to achieve a broad perspective for this analysis the following four heritage sites were selected:

- Liliesleaf Liberation Centre, Rivonia, Johannesburg,
- Constitutional Court, Constitution Hill, Braamfontein,
- Hector Pieterse Memorial Museum, Orlando West, Soweto, and
- The Apartheid Museum, Gold Reef City, Ormonde.

The two former heritage sites have a chronological association to the Old Synagogue in terms of historic events which occurred at these sites during the Liberation Struggle. The latter heritage sites also contributed to the Liberation Struggle and commemorate its importance,



- A_ main entrance - 1 of 2 points of penetration in perimeter walls
- B_ drop-off area and pedestrian entrance
- C_ green space
- D_ coffee shop and pathway leading to landscaped rooftop terrace

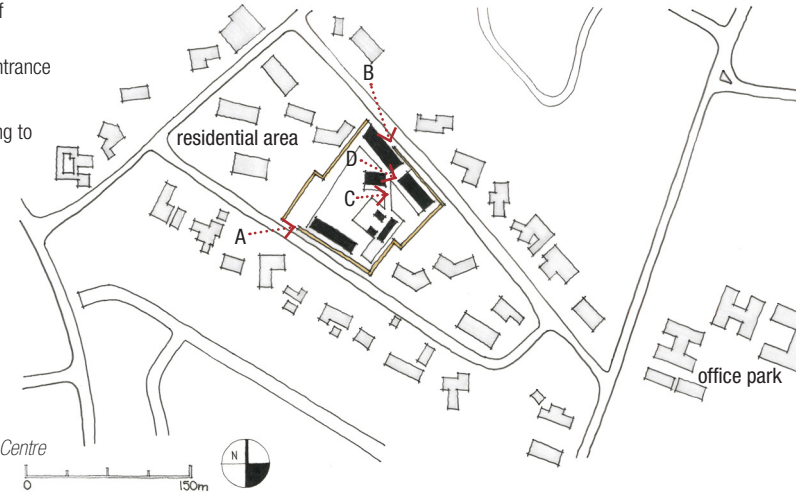


Fig. 08_ Photo montage of Liliesleaf Centre
Fig.09_ Context exploration



A_ view of Constitutional Court from atop Old Fort perimeter wall

B + C_ parallel views [in opposite directions] illustrating a disconnection between internal and external spaces

D_ poor interface between Constitutional Court and 'Great African Steps'



however *are not directly associated* to the Old Synagogue.

A common denominator amongst all four heritage sites is the varying degree of introversion. At the Constitutional Court and Hector Pieterse Memorial the buildings themselves form a poorly penetrable barrier between commemorative structure and surrounding context. Both projects are situated in direct correlation with public squares but have a weak and unrealised interface with the public space due to their introverted nature. Liliesleaf Liberation Centre and the Apartheid Museum are nestled within perimeter walls. The dialogue between buildings and defined routes on the site are well articulated, although these heritage sites display a low level of engagement with the surrounding context.

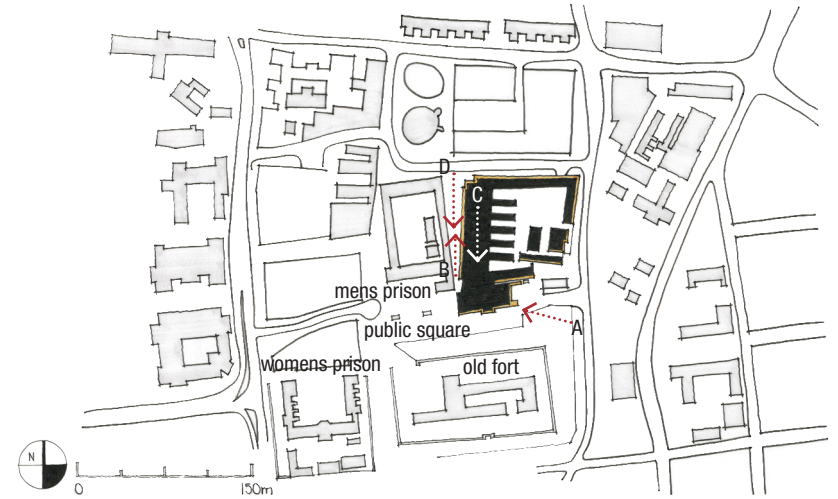


Fig. 10_ Photo montage of the Constitutional Court

Fig. 11_ Context exploration

These sites also share a second common attribute, which are internal courtyards and garden/park-like outdoor spaces. After paying an entry fee to gain access to the Constitutional Court and Hector Pieterse Memorial one can browse and interact with exhibits within the confines of the structure. However the internal courtyards remain inaccessible to visitors, thus rendering the spaces underutilised and a missed opportunity for public interaction. Liliesleaf and the Apartheid Museum are organically integrated into their natural landscapes and these have the potential to become successful recreational spaces. This potential is especially applicable to Liliesleaf because of its location within a predominantly residential context. However, because these spaces are not programmed for recreational purposes,

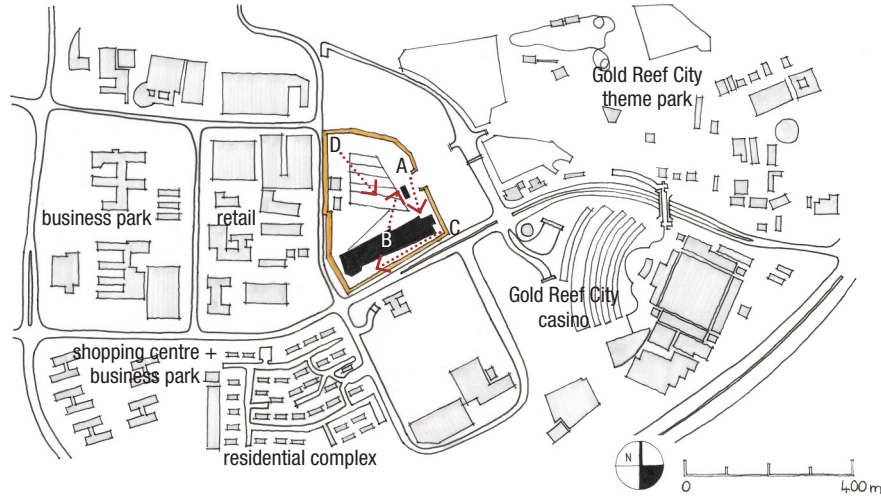


- A_ view of museum from square
- B_ internal courtyard
- C_ entrance to coffee shop
- D_ illustration of decontextualised built form - 2 facades facing 2 different cardinal directions with 1 disengaged response

remain underutilised and overprotected – a topic to be discussed further in the literature review.

In terms of functionality, the four heritage sites had exhibition based accommodation requirements. Exhibition halls, auditoria, libraries and archives are common in Liberation Struggle commemorative buildings. The functional requirements are mainly focused at meeting these demands and pause spaces are predominantly in the form of coffee shops. The urban context and the collective needs of users and people who live in the vicinity of the heritage site are not addressed. Christa Kuljian in her published article: Reflections on the Walter Sisulu Square of Dedication, states that:

Fig. 12_ Photo montage of the Hector Pieterse Memorial
Fig. 13_ Context exploration



Development programmes that are informed by the needs of the local residents and local cultural practices have a much better chance of encouraging human development. (Kuljian, 2007:88)

It could be argued that Liberation Struggle Heritage Sites display weak public accessibility traits, and do not engage with their surrounding context in a manner which stimulates socio-economic (and political) growth. The following Literature review presents an argument which motivates for an integration of heritage sites into their broader context, as opposed to a 'walled-in' objectification'¹ (Collins English Dictionary, n.d.) of historic buildings of cultural heritage value.

¹ From Objectify: to present as an object.

- A_ monolithic memorial with the pillars of the Constitution
- B_ view from roof of main entrance and shop
- C_ approach ramp along gabion wall
- D_ manicured indigenous planting



Fig. 14_ Photo montage of the Apartheid Museum
Fig. 15_ Context exploration

THE APARTHEID MUSEUM

2.3 Literature review_

In the previous section Liberation Struggle Heritage Sites were analysed to determine their levels of public accessibility and engagement with their surrounding context. This section focuses on:

- how to re-integrate historic buildings of heritage value into their contemporary urban environments, to successfully contribute to the present spatial, social and administrative context.
- how the process of transforming historic buildings and landscapes into South African Heritage Sites can be implemented through a vantage point of public inclusion.

Gavin McLachlan (2009:76) provides the following definition of public inclusion: “By inclusiveness is meant that in developing a conservation proposal for an urban area a real attempt should be made to include monuments, buildings and neighbourhoods that reflect the history and experience of all communities”.

Within the context of a heritage site the issue of transformation also needs discussion. Transformation could be defined as:

1. (In South Africa) a national strategy aimed at attaining national unity, and promoting reconciliation through negotiated settlement and non-racism (Collins English Dictionary, n.d.).

2. Concerns change in nature, function or condition of things (Porter, 2004:156).

Lastly, the issue of Integration also becomes important. This could be described as:

1. The combination of previously racially segregated social facilities into a non-segregated system (Collins English Dictionary, n.d.).

2. The act of combining or *integrating* to make a unified whole (Collins English Dictionary, n.d.).

Transformation, in terms of the architectural preservation of built heritage at Liberation Struggle Heritage Sites, focus firstly on connecting with the past. Lipman (2004:45) states that most people in South Africa are dislocated from their immediate pasts, either wilfully, reluctantly or through the realities of displacement. Therefore ‘transformation’ must not only be interpreted in post 1994 South Africa as a socio-political change, but in addition an avenue for identity

building. Paul Meurs, Professor of Architectural Restoration at Delft University of Technology reaffirms this notion in his publication, *Building in the stubborn city* (2008). Meurs (2008:11) argues that cultural history can enrich changes when the symbolic meaning of the existing spatial qualities becomes part of the design for renewal. This sentiment is particularly applicable to the Old Synagogue in terms of developing a conservation strategy - based on engaging with both the building and the site's past.

If re-integration of the Old Synagogue into its contemporary urban environment is a key proponent in creating a contextually appropriate commemorative centre, one needs to consider the "architectural logic of the location" (Meurs, 2008:11). The contextual forces acting on the site pertains to the climatic and topographic, and specifically the socio-economic and political circumstances of the site and context. Meurs (2008:13) urges built heritage practitioners to not freeze the form of commemorative buildings, but to build in the spirit of the city; strengthening the character of its context. As a result, this approach mitigates the potential of a historic building being reintroduced into its urban environment as an objectified element.

Ana Pereira Roders, the author of *Re-architecture: Lifespan rehabilitation of built heritage* (2007) presents a similar theoretical standpoint, however she warns against the dangers of over-protecting and conversely under-protecting historic buildings. According to Roders (2007:28), over-protected built heritage will result in the protected building becoming "frozen in the golden age" - alluding to the opinion of Meurs. On the other hand, under-protection can lead to different negative outcomes, Roders (2007:23) identifies abandonment and vandalism of historic buildings as a major threat to a city's built heritage. The current state of the Old Synagogue is indicative of this condition (Buntman, F. & Buntman, B., 2010:186). However, the mere acquisition and implementation of a programme to the Old Synagogue may not necessarily be an adequate solution. Roders (2007:28) pinpoints a second thread to under-protection, namely the re-appropriation of a historic building with an unsuitable programmatic intervention. Interventions of this nature generally require high levels of change to the existing fabric which result in considerable rates of subtractions and additions. The author recognises that such interventions are often required to meet the demands of the modernising city.

However, this should not veto the importance of preserving cultural history. In affirmation of this Meurs states that in the city of the future there is also a need for the past, and cities can be extremely well modernised while still preserving old structures. Furthermore, one could even derive a special quality from their cultural history (Meurs, 2008:23).

In order to achieve a meaningful re-integration of the Old Synagogue into its surrounding context the following imperative conditions must be met;

- Conserving the built heritage environment within a South African context of transformation, and establishing a connection with the past should be realised (Donaldson, 2005:796). Through this connection the symbolic meaning of the Old Synagogue can guide the decision making process towards contextually appropriate re-appropriation and intervention outcomes. This estimation is asserted by Roders in the following statement:

The built heritage which represents a system of values and the natural and cultural heritage of a community should strive not only to improve the quality of life and habitat within such a community but do so in a sustainable manner. (Roders, 2007:35)

- It could be hypothesised that Liberation Struggle Heritage Sites should be designed to accommodate a variety of contextually generated functions which contribute positively to the heritage sites greater urban environment.

An additional key factor in developing a contextually appropriate commemorative centre at a heritage site is adopting an inclusive approach to conservation. In order to motivate for a publically inclusive heritage site which promotes freedom of use as an accessible public commodity, the current South African trends in built heritage conservation must be investigated. However the dynamics of an inclusive design approach must first be described. This approach takes into account the fundamental attributes of a collective who are forging a new identity in post apartheid South Africa. These attributes are;

- memory
- continuity, and
- identity

Kevin Lynch, the author of *What time is this place?* (1972:130) states that memory is the basis of self identity. In the 1982 publication; *The architecture of the city*, Aldo Rossi (1982:2) substantiates this theoretical

standpoint by writing that the city is the collective memory of the people. Finally, Gavin McLachlan, author of the academic article – *Sustainable urban conservation in the context of South Africa: case studies of Port Elizabeth and Graaff-Reinet* reaffirm this notion within a South African context by stating the following:

Sustaining old buildings and neighbourhoods is important because it provides continuity with the past and generates a sense of self worth and identity. (McLachlan, 2009:60)

Inclusive design advocates the importance of continuity in the built environment through sustaining buildings of historic value, but how does this approach address pressing social dynamics? Paul Meurs (2008:39) asserts that the relation with social dynamics is so strong that conservation can no longer turn in on itself. The ‘theme park’ approach to preservation is effective in stimulating economic growth through cultural tourism, whereby cultural heritage has become a commoditised product – preserved, framed, and marketed to ‘consumers’ (Marschall, 2005:104). However a social dynamic – where the way of life of a community is at the heart of conservation strategies (McLachlan, 2009:68) - considers empowering local residence as a market resource for economic growth. Improving the living and working environment of a local

community within a conserved physical environment is the core imperative of a publically inclusive heritage conservation approach.

Public inclusiveness in a conservation based development hinges on an understanding of the dynamics which impact on a heritage site and its broader context. The purpose behind developing a contextually appropriate heritage site is that of ultimately telling a unified story which is in harmony with social reality (Meurs, 2008:25). To conclude, the author maintains that to effectively transform heritage buildings and landscapes into South African heritage sites one must entrench the constructs of memory, continuity, and identity into the conservation strategy, and furthermore react to the current social reality of the heritage sites broader context.

- Therefore it is further hypothesised that by adopting the aforementioned approach to developing a Liberation Struggle Heritage Centre; in particular at the Old Synagogue, there lies the potential to catalytically rekindle economic growth and social interest in the perceived northern portion of Pretoria’s inner city. This will be achieved through socio-economic and political empowerment of the local community and users of this historic inner city environment.

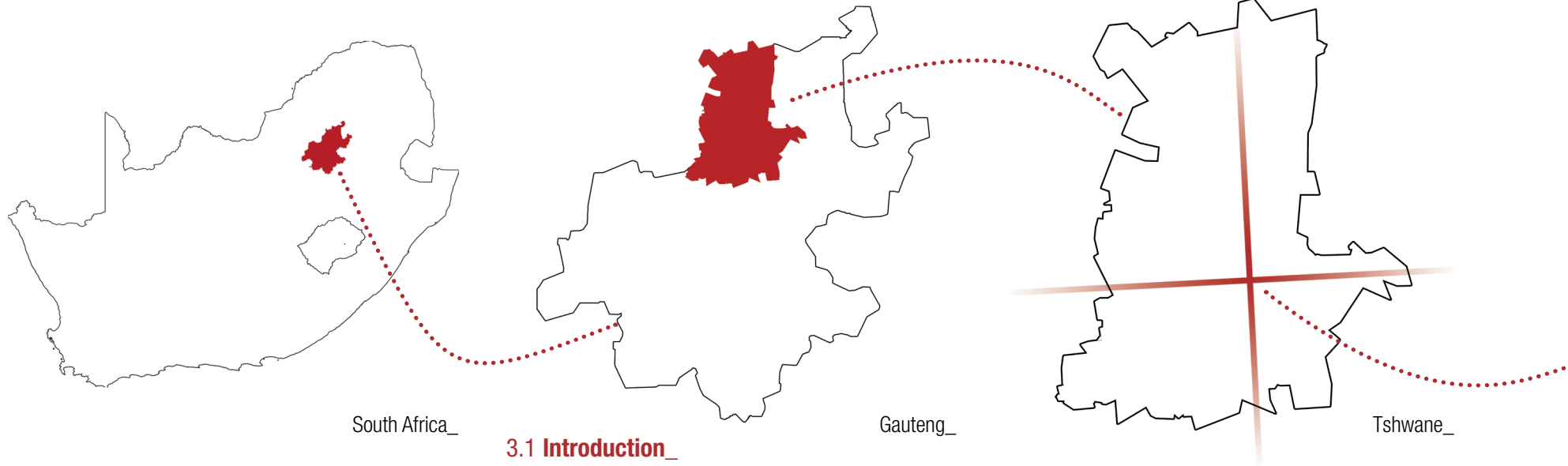
CHAPTER 03

Fig. 16_ Aalto's relationship nature and the man-made





CONTEXT



3.1 Introduction_

The Old Synagogue is located within the inner city of Pretoria: two city blocks north of Church Square along Paul Kruger Street. An important symbolic junction exists at the intersection of Paul Kruger Street and Struben Street: the north-south axis of the inner-city meets the east-west visual link to the Union Buildings. Struben Street is also known as the 'Government Boulevard' due to this visual link. The Old Synagogue and study area are on the southeast quadrant of this symbolic junction. The Old Synagogue brings a historic character to the northern portion of the inner city, and this character is strengthened by the presence of

other buildings of heritage value within its surrounding environment. This chapter explores the historic character of this built environment, and identifies the present-day contributors to the urban fabric within the larger context of the Old Synagogue.

Fig. 17_ Site locality
Fig. 18_ Study area aerial photograph



STRUBEN STREET
GOVERNMENT BOULEVARD

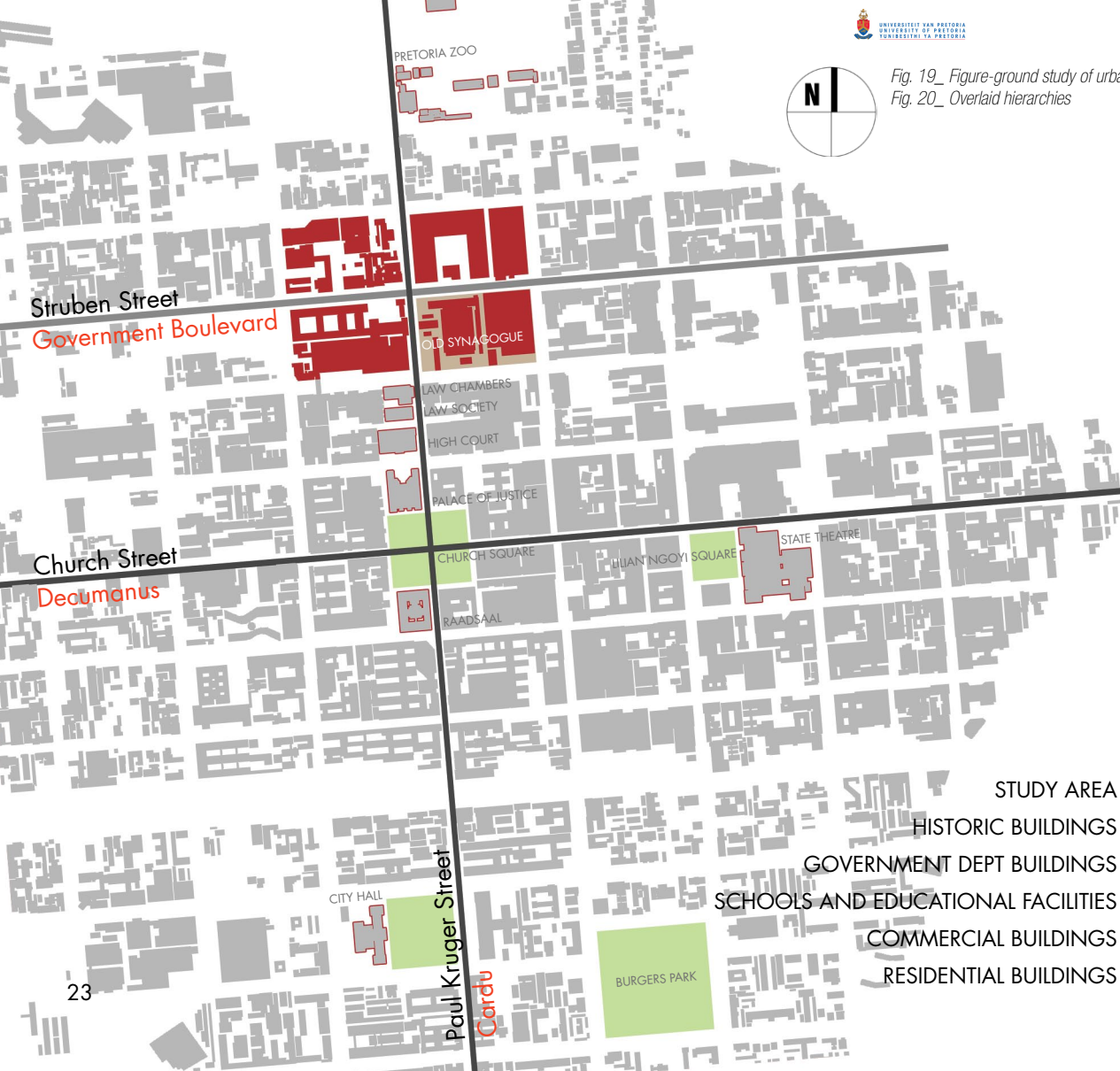
STUDY AREA

CHURCH STREET

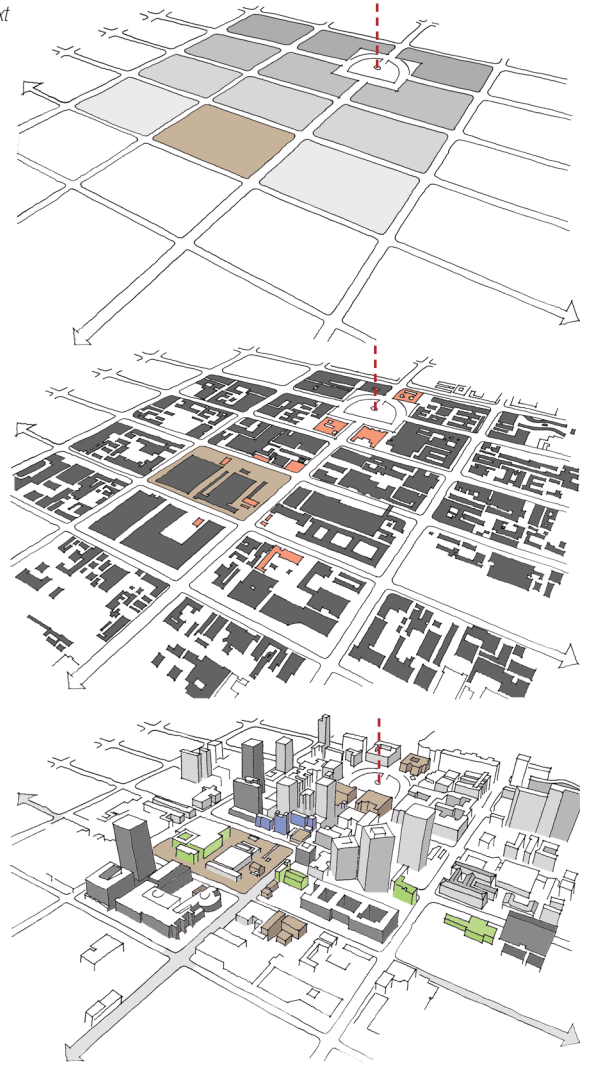
PAUL KRUGER STREET

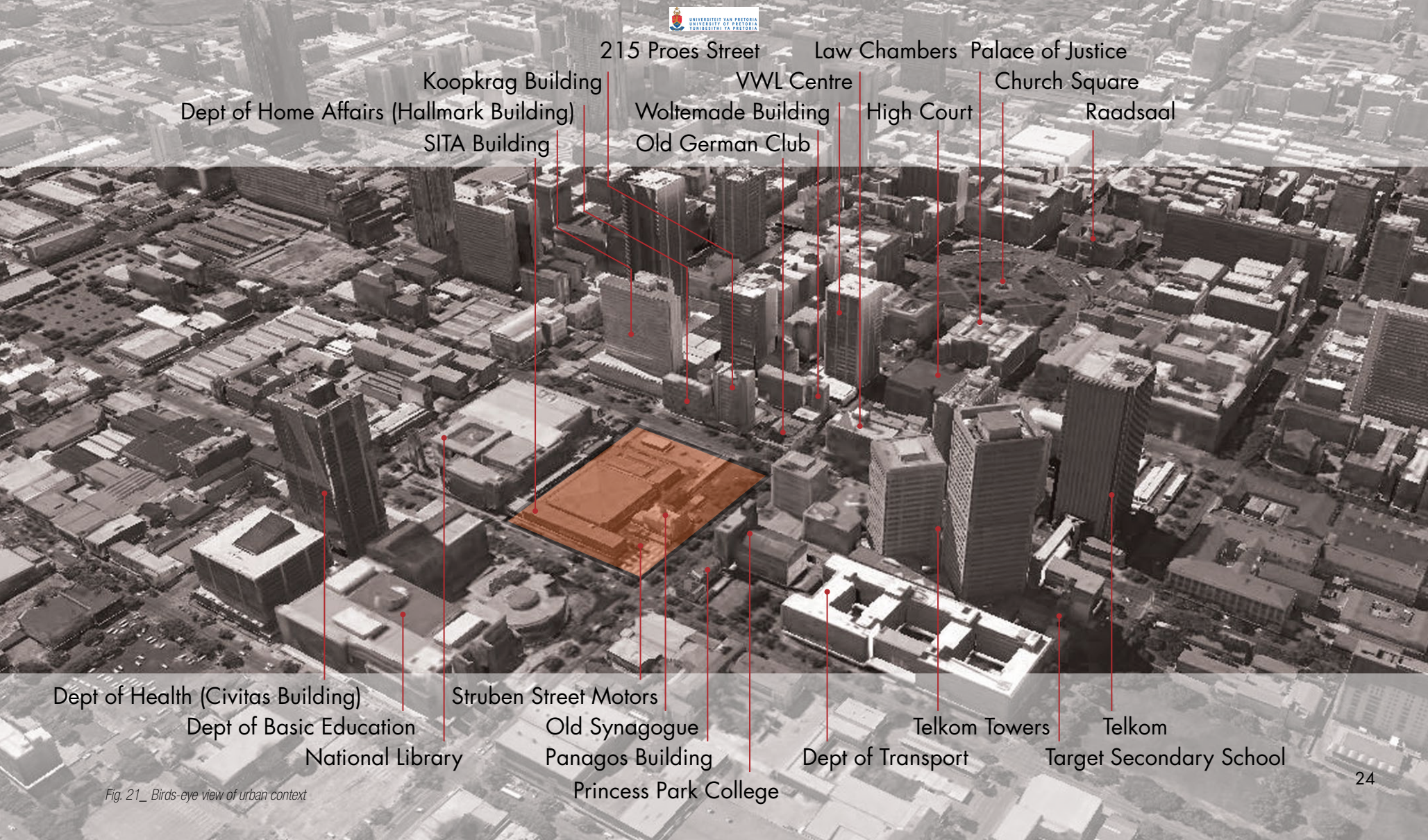


Fig. 19_ Figure-ground study of urban context
Fig. 20_ Overlaid hierarchies



- STUDY AREA
- HISTORIC BUILDINGS
- GOVERNMENT DEPT BUILDINGS
- SCHOOLS AND EDUCATIONAL FACILITIES
- COMMERCIAL BUILDINGS
- RESIDENTIAL BUILDINGS





215 Proes Street Law Chambers Palace of Justice
Koopkrag Building VWL Centre Church Square
Dept of Home Affairs (Hallmark Building) Woltemade Building High Court Raadsaal
SITA Building Old German Club

Dept of Health (Civitas Building) Struben Street Motors Telkom Towers Telkom
Dept of Basic Education Old Synagogue Dept of Transport Target Secondary School
National Library Panagos Building Princess Park College

Fig. 21_ Birds-eye view of urban context



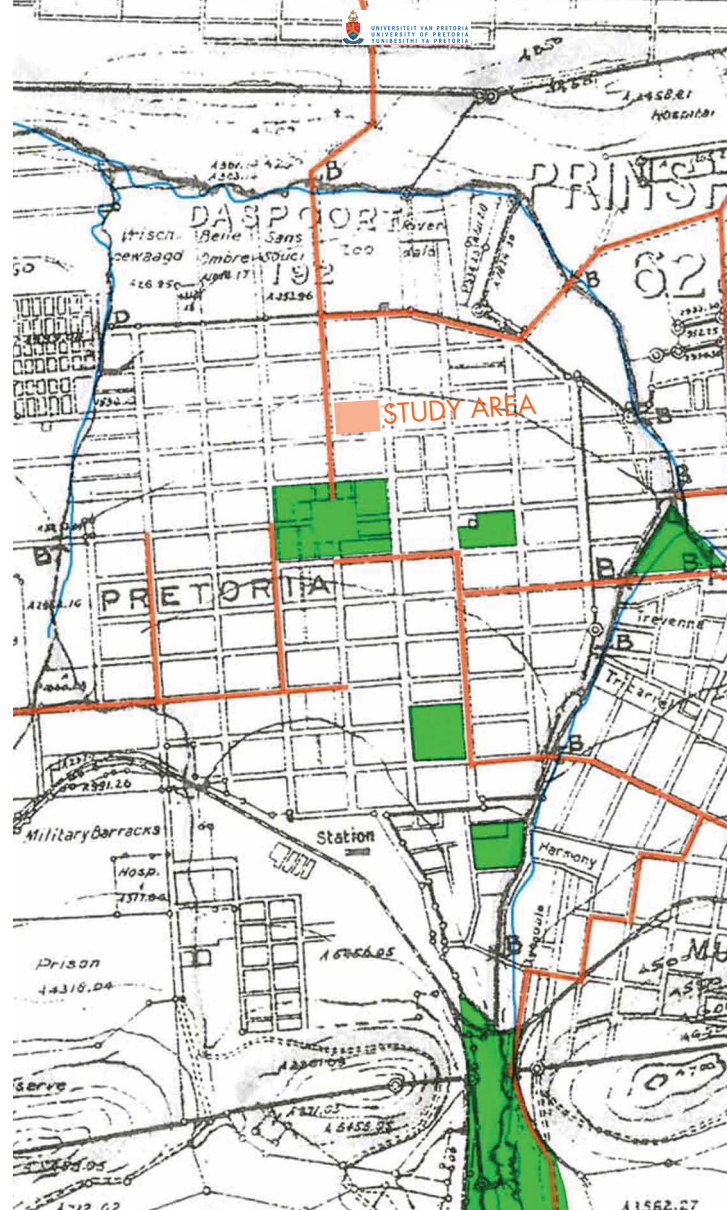
Fig. 22_ Paul Kruger Street in 1904



Fig. 23_ Paul Kruger Street in the 1930s



Fig. 24_ Historic water furrow



3.2 Historic character of the inner city

In 1989 South African periodical; 'Architecture S.A.' published an article by Gerrit J. Jordaan entitled 'Pretoria as Urbs Quadrata' in which a historic account of the town planning decision pertaining to the layout of Pretoria is provided. Jordaan (1989:26) attributes the layout of Pretoria's inner city blocks to the implementation of a rigid Cartesian grid which resulted in a traditional Grid-iron street arrangement. The axes are ordered to correspond with the openings in the surrounding mountain ranges. The north-south (Cardu) axis of Paul Kruger Street terminates in the Daspoort mountain range to the north and the Schurweberge mountains to the south. The east-west (Decumanus) axis of Church Street terminates at the crossing of the Apies River to the east and the Steenhoven-Spruit to the west.

Water from the Steenhoven-Spruit and Apies River were reticulated into open ducts and by 1860 a water furrow system was implemented to serve the grid with fresh water from the Fountains Valley. Traditionally buildings were positioned on the street edge of the property with the front facade interacting with the street. In 1888 the first Jacaranda trees were planted. As a result the sidewalks were lined by a row of trees creating a threshold between

Fig. 25_ Tram line network in 1936

Contextually the city form is a result of the interpretation of a classical landscape, its mountains, valleys, fountains, rivers, and 'poorte' (Jordaan, 1989:26)

the street and sidewalk. The street edge was further defined by the water furrow. Steam-rollers were first used between 1892 and 1894 to compact streets, and during this period the first electric street lights were installed.

Further historic thresholds were created over time. Older buildings such as the Panagos Building are set back five meters from the street edge, whereas newer buildings such as the Masada Building and Princess Park College are set back nine meters from the street edge creating a wider and more varied sidewalk along the length of the street. Tram lines were introduced into the urban fabric in 1936 with their tracks running down the centre of the street. Even though Trams are no longer used as a mode of transport within the inner city their historic layer still remains. The tracks were never removed; rather they have been subsequently covered when the streets were re-tarred. In 1860, the water furrows were originally designed as 600mm wide by 800mm deep 'channels'. In 1885 they were covered with slate, later earth and then paving. From the 1910's to the 1940's they served the purpose of conveying stormwater and is a testimony to further evidence of historic layering within the inner city of Pretoria. When considering the above, a proposed intervention should not only be sensitive to the historic fabric of the Old Synagogue, but also dignify the significance of the historic urban elements that contributed to the cityscape of yesteryear. The Old Synagogue and the historic buildings within its vicinity are highlighted in the next section.

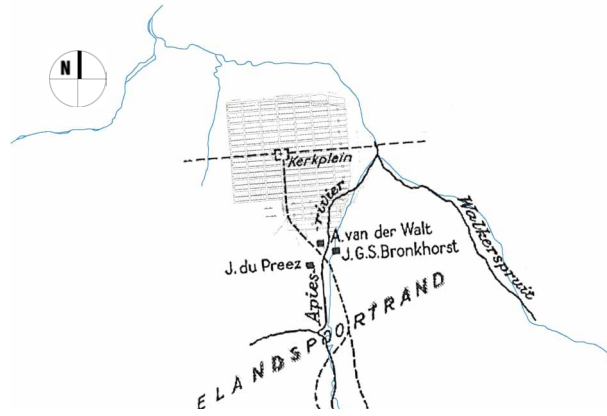
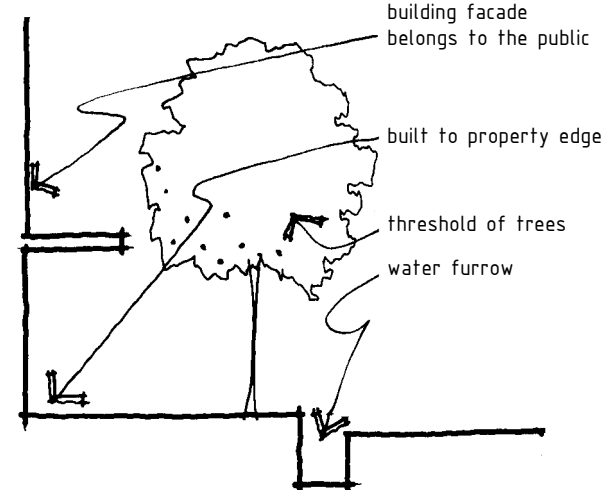


Fig. 26_ Historic street section in the 1940's

Fig. 27_ Rivers feeding the inner city furrow system



Fig. 28_ Panagos Building



Fig. 29_ Present-day Paul Kruger Street, looking south



Fig. 30_ Present-day Paul Kruger Street, looking north

3.3 Historic fabric

The Old Synagogue contributes significantly to the heritage value of the study area. It acts as a chronological landmark in the urban context of Pretoria. Other buildings contributing to the historic fabric of the study area are:

The Panagos Building; dating back to the 1880's and bearing the title of one of the earliest 'mixed use' buildings in the city. It consists of retail spaces at ground level while having residential apartments on the upper level. Jansen House, which is now incorporated into the Department of Basic Education headquarters, dating from 1888, and the Old Victorian Boarding House; incorporated into the National Library are also buildings of heritage value. The Old German Club on the southeastern corner of the Paul Kruger/Proes Street intersection dates back to the 1930's. The building has been sub-divided and appropriated as fast food and small retail outlets.





Jansen House



S.A National War College



Old Victorian Boarding House



Old Synagogue



Panagos Building



Koopkrag Building



Old German Club



Woltemade Building

The Koopkrag Building together with its neighbours; 215 Proes Street and the Hallmark Building signify a few Modernist contributions to the inner city. The red brick Koopkrag Building was completed in 1954. The ground floor is currently occupied by retail outlets whilst the upper seven levels comprises of residential accommodation. The 1961 Woltemade building is evidence of South American influence on the 'Pretoria International Style'. Ground floor office space was altered to accommodate retail outlets. The first floor is predominantly attorneys offices and the upper levels sectional title flats.

Fig. 32_ Photo montage of surrounding context

3.4 Present-day fabric_

The deteriorated condition of the Old Synagogue is a far cry from its period as a House of Worship and Supreme Court. Today the building is abandoned and void of any public interaction due to a three meter high barbed wire fence on its perimeter. The security fence may hinder further deterioration and abuse, but the monument is at great risk of losing its significance to younger generations. Whilst the Old Synagogue remains a non-contributor to its socio-economic context, other buildings within the study area continue to adapt and function.

Directly opposite the Old Synagogue, on the western side of Paul Kruger Street, is Princess Park College. The school accommodates learners from grade 0 to grade 12, with limited teaching and recreational space. The building is in a poor condition. The privately owned Masada Building dates back to the 1970's with its characteristic lightweight aluminium shading devices on all four facades. The ground floor is subdivided into retail and restaurant outlets whilst the upper levels are rented out to the Government Printers and the Department of Correctional Services.





Dept. of Health (Civitas Building)



Dept. of Basic Education



Dept. of Transport



National Library



SITA Building



Princess Park College



Masada Building



215 Proes Street



Law Chambers

Other Government Departments such as the Department of Transport, Department of Basic Education, and Department of Health line Struben Street (Government Boulevard) to the north of the Old Synagogue. Functions pertaining to the law fraternity cluster to the south of the Old Synagogue. The contemporary Law Chambers is found on the southwest corner of the Paul Kruger / Proes Street intersection. Neighbouring further south is the Law Society of Northern Provinces, High Court, and Palace of Justice heritage landmarks.

The National Library was completed in 2009 and displays a regional response to Pretoria's climate. The facility has significant educational value since it houses all books published in the country.

Fig. 34_ Photo montage of surrounding context

3.5 Historic significance of the Old Synagogue_

It was on 28 July 1890, some 120 years ago that the Jewish congregation of Pretoria formed. Five years later, on the 11th December 1895, after holding services in private houses and hotels, erf 103 at 74 Market Street (Paul Kruger Street today) was purchased from Thomas Patterson for the sum of 1500 pounds for the purpose of erecting an appropriate place of worship to serve the growing Jewish community. Millionaire and charitable donor Sammy Marks contributed more than 1500 pounds towards buying bricks and materials. On the 8th August 1897 it was unanimously resolved that the Synagogue should have seating capacity for just over 500 individuals, with the total cost of the building, excluding the site to not exceed 6500 pounds (Vos, 1995:1).

The Old Synagogue, being the first example of Byzantine architecture in Pretoria was designed by architects Ibler and Beardwood (Vos, 1995:2). However the elaborate Byzantine manner had only been applied on the street facade, while the rest of the building was of a very rational and economical design (Vos, 1995:3). After the plans were submitted and approved Mr. Krockel was appointed as the contractor and building operations commenced on the 1st October 1897. Construction approached completion during the course of 1898.

After over 50 years of serving the Jewish community, the Synagogue eventually could not comfortably accommodate the ever-growing congregation, and in 1952 the Great Synagogue in Pretorius Street was built. In the same year the Department of Public Works purchased the entire city block on which the Synagogue is situated with the intention of demolishing the Synagogue to clear the way for the construction of a new Supreme Court (Vos, 1995:3). Plans for the construction of the Supreme Court were stopped after the proposed design was deemed unethical and unconstitutional (Vos, 1995:10).

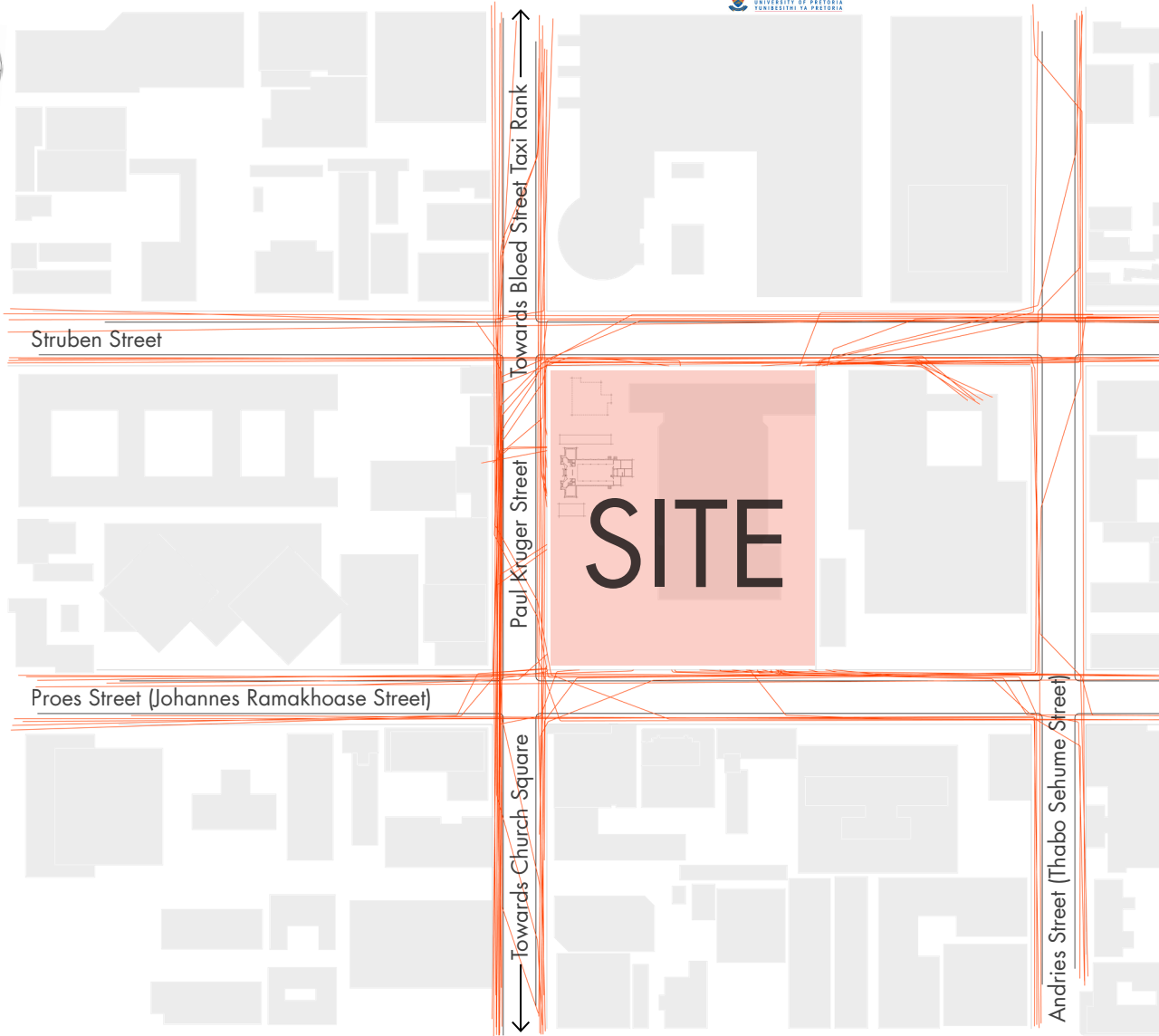
In 1956 the Treason trials started at the Drill Hall in Johannesburg, and were then moved to the Old Synagogue in Pretoria. During that time the building was converted into a “special Supreme Court” (Vos, 1995:10) catering specifically for cases related to the security situation, the activities of the black opposition movements, and the Communist alliances. The colourful surface decorations of red and ochre stripes on the eastern facade of the Old Synagogue were painted over in white and the rose window was removed. Additional cells and administration offices were also built on the site which was part of a programme of changes to transform the building into a proper, functioning Supreme Court.

From the 1st August 1958 to the 29th March 1961, the treason trials of Nelson Mandela, Walter Sisulu, Oliver Tambo, Dr. Albert Luthuli and many other political activists were held at the Old Synagogue. The accused were acquitted on the 29th March 1961 and the charges against the 92 accused freedom fighters were dropped (Vos, 1995:13). Following the Treason Trial the State successfully prosecuted Nelson Mandela at the Old Synagogue in 1962. He was charged with 'inciting African workers to strike' and leaving the country without valid travel documents (Buntman, F. & Buntman, B., 2010:189).

On 12 June 1964 the Rivonia trial drew to a close at the Palace of Justice in Pretoria. Nelson Mandela and nine other Operation 'Mayibuye' (meaning 'comeback') masterminds were tried for 221 acts of sabotage designed to overthrow the Apartheid system. Mandela was sentenced to life imprisonment with hard labour on which marked another momentous day in South African history. The inquest into the death of Steve Biko, the founder of the Black Consciousness Movement was held at the Old Synagogue on the 14th November 1977. No one was charged after the court ruled that there was not enough evidence to support the accusation that Biko had been tortured (Vos, 1995:16).



Fig. 36_ The Old Synagogue's original western facade
Fig. 37_ Supreme Court changes to the western facade
Fig. 38_ Mandela addresses crowd outside Old Synagogue



3.6 Site selection_

The site for the architectural intervention is a proposed consolidation of the following plots:

The entire city block on which the Old Synagogue is sited is owned by the Department of Public Works (DPW). Struben Street Motors to the north of the Old Synagogue and the makeshift car park to the south are renting their respective premises from DPW on a monthly lease agreement basis. Therefore these two sites could be effectively consolidated with that of the Old Synagogue. The SITA Building is a Government owned agency. The re-appropriation of its premises is critical to the development of a Heritage Centre at the Old Synagogue, together with the creation of a public open space in the northern portion of the inner city. Therefore the intervention proposes the demolition of the SITA Building and the consolidation of this plot into the Old Synagogue Heritage Site.

Fig. 39_ Study area movement patterns - 2011-03-07, 2:30pm to 4:30pm

3.7 Site analysis



Fig. 40_ Man foraging in bin

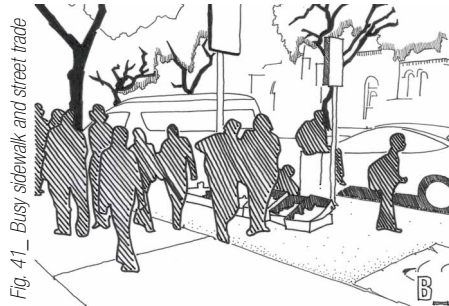


Fig. 41_ Busy sidewalk and street trade

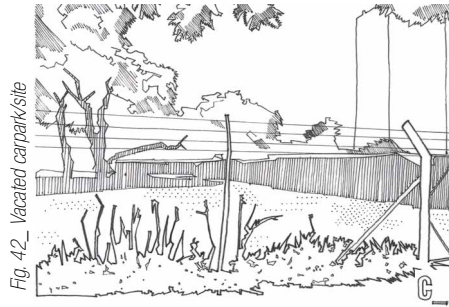


Fig. 42_ Vacated carpark/site

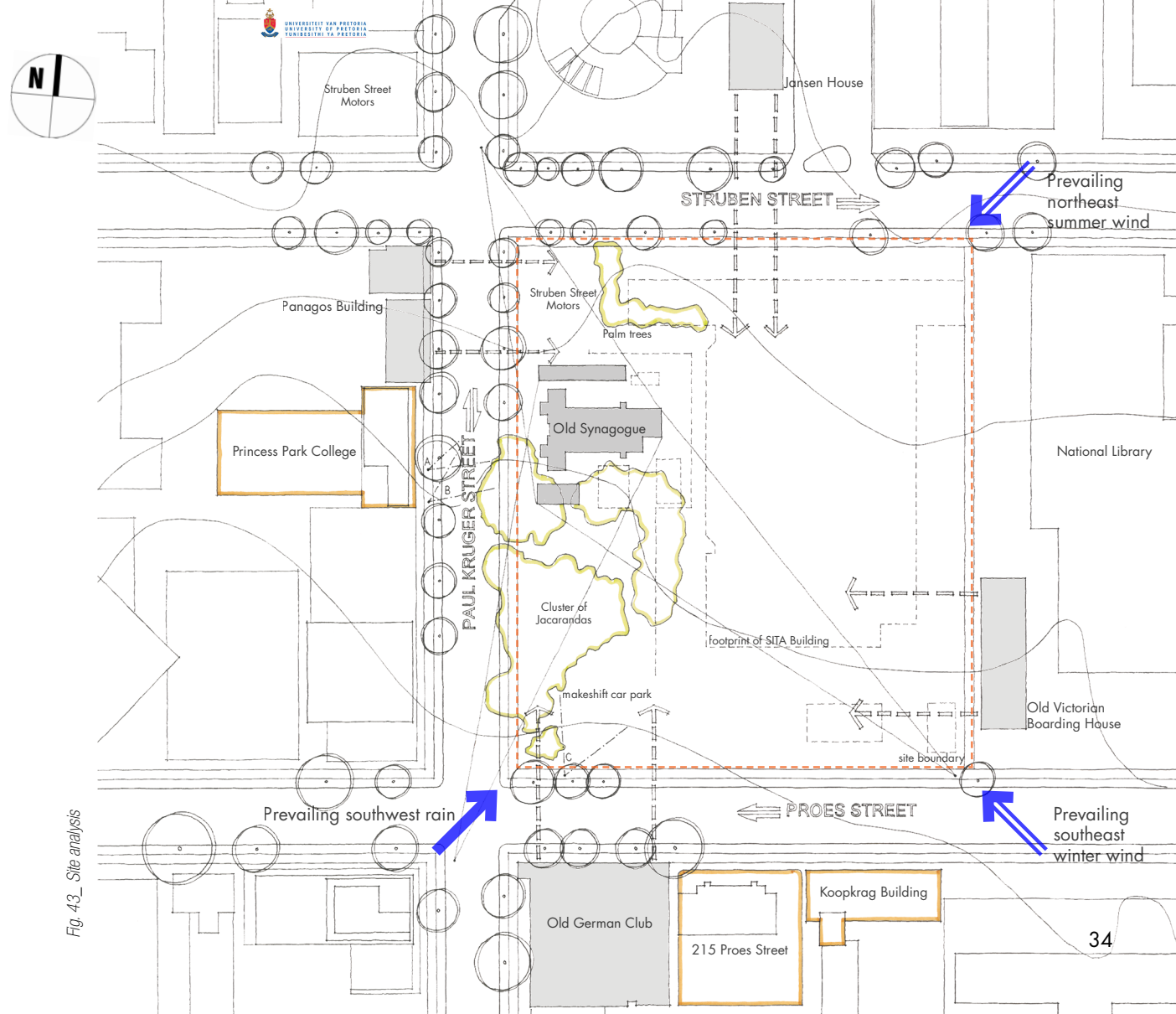


Fig. 43_ Site analysis

Fig. 44_ Context data collection - 2011-03-07, 2:30pm

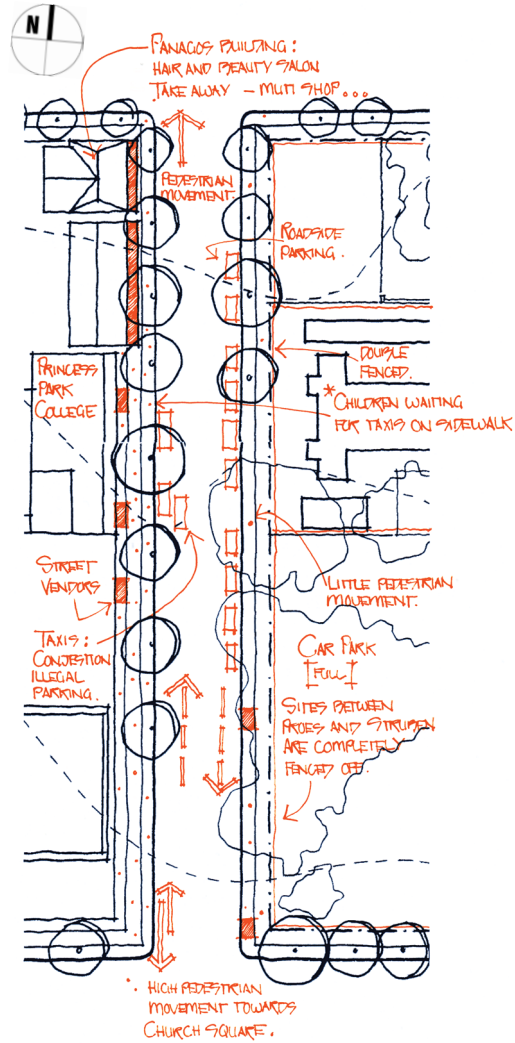


Fig. 45_ Context photo montage - western side of Paul Kruger Street





Fig. 46_ Context photo montage - eastern side of Paul Kruger Street



3.8 Site views_

3.9 Proposal_

3.9.1 Programme_

On an urban scale, the project aims to initiate programme as a means of rejuvenating the Old Synagogue. The intended programme should respect, liberate, and celebrate the history and heritage of the Old Synagogue together with the surrounding buildings of heritage value. The design scheme is based on the premise that an opportunity to commemorate the history of the Old Synagogue has been identified. The programme is made up of three built components which in unison constitute a Government founded Heritage and Mediation Centre rooted in community based utility.

The first component of the proposal is a restorative and adaptive reuse programme for the Old Synagogue. The intention is to re-appropriate the building along adaptive reuse principles such as the 'sharing of facilities' and 'adaptability through flexibility' of space in an effort to make the Old Synagogue a functional and relevant contributor to the built environment. The objective is to adopt an approach to conservation that will result in the Old Synagogue being memorialised and reused as a community hall cum gallery. The intention is to pay homage to, and create awareness of the historic events which occurred at this site.

The second component is a Political History Learning Centre which commemorates the history of the Old Synagogue whilst educating individuals on its role in the

Liberation Struggle. The Learning Centre takes the form of an exhibition route. The route chronologically exhibits historic images, text, video footage, and personal accounts by liberation activists regarding the Liberation Struggle.

The third component is a Mediation Centre. The programme has both historic and present day relevance within this context. Historically, the Supreme Court incarnation of the Old Synagogue used Litigation as the structure for legal proceedings. The legal structure was used as a means of stifling the advancement of the Liberation Movement. In today's democratic society, mediation facilitates fair, equal, and non-violent dispute resolution in a neutral environment. Through the contextual investigations the author found that the Old Synagogue site mediates between the law fraternity precinct around the High Court, and the Government Department precinct along Struben Street.

The key factor in this form of Alternative Dispute Resolution is effective communication. The intention is to introduce an impartial third party to mediate on a private scale dealing with family matters, and on a public scale between National Government, unions, and corporations. Public scale mediation has the potential to mitigate the negative impact of prolonged strike action. The programme welcomes civic action, since it is at the core of South Africa's political history. The proposal seeks to create an appropriate platform through which such action can take place.

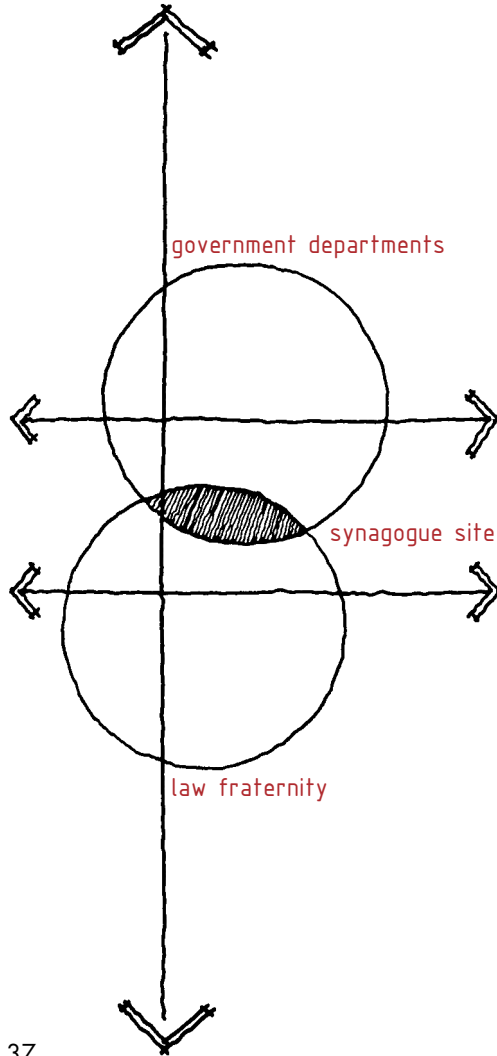


Fig. 47_ Site mediates between the law precinct and Government department precinct

A public square forms the binding constituent of the three components and adopts the role of unifying the old and new. The square also gives the Old Synagogue 'breathing space' within the proposed changes and additions to its surroundings. The purpose of the public square is to be a place of gathering for civic functions, recreation, or celebration. In addition is a public voicing platform, in reverence to the multitude of inspirational speeches delivered by opposition leaders. The intention of the public square is to create a platform which facilitates user interaction on social, educational, and functional levels.

3.9.2 Client

The programme is a Department of Public Works (DPW), Department of Public Services and Administration (DPSA), Department of Tourism (DoT), and City of Tshwane Metropolitan Municipality (CTMM) initiated venture mandated by the South African Government. The intervention aims to reveal the South African cultural heritage embedded in the landscape of the Old Synagogue. This could be achieved through promoting heritage tourism at the Old Synagogue thereby stimulating economic growth and investment in the historic icon.

Public Private Partnership funding, paired with National Government Department investment is crucial to the success of the proposal and its potential to foster public ownership of Government initiatives. The ideal outcome

would be that of continued Government investment in the northern portion of the inner city; thus stimulating further private sector investment and the creation of opportunities for growth.

The Heritage and Mediation Centre is geared towards public utility as a place to gather, learn, and retreat within the inner city. The programme encourages urban schools in the vicinity of the centre to utilise the Old Synagogue and proposed public space for school functions and gatherings since space for such events are limited within the inner city. The Mediation Centre, Synagogue space, and exhibition route are accessible to tourists and the general public alike which creates a platform for interaction and dialogue.



Fig. 48_ Culture of strike and protest action in South Africa

CHAPTER 04

Fig. 49_ Figure-ground of Pretoria





URBAN
FRAMEWORK

4.1 Theoretical approach towards architecture_

This section explores the author's theoretical approach to the creation of a Heritage and Mediation Centre at the Old Synagogue within a context in need of rejuvenation. Case studies of selected commemorative Heritage Centres will be analysed to develop a line of conceptual thinking and a suitable course of action towards realising the design.

According to Jan Gehl, in his publication: *Life between buildings* (1987:33), just as it is possible through the choice of materials and colours to create a certain palette in the city, it is equally possible through planning decisions to influence patterns of activities, to create better conditions for outdoor events, and to create lively cities. It is therefore the architect's duty to make informed planning decisions with a knowledge and understanding of the principles that shape good architecture which in turn create practical and highly useable public space.

The principles alluded to above are what Thomas L. Schumacher refers to as traditional city values in the theory of Contextualism from his contribution to *Theorising a new agenda for architecture, an anthology of architectural theory 1965-1995* (1996:294). The author is aligned to the theoretical standpoint of Schumacher who draws a

contrast between the traditional city and modern theories of urbanism (the modern city) arguing that the modern city is compositionally the reverse of the traditional city.

Composed of isolated buildings set in a park-like landscape, the city-in-a-park (modern city) presents an experience which emphasises the building volume and not the space which the buildings define or imply.
(Nesbitt, 1996:296)

Thus instead of finding a middle-ground or transitional approach, the modern city ideal has consumed traditional urbanism and its inherent values in the name of progress. The lack of evident transition or *progression over time* in the built environment has therefore been influential in the apparent fragmentation of built form and urban landscape.

From this standpoint one can argue for a return to traditional city ideals, but this alone won't solve the current real world problems that Pretoria's inner city are confronted with. However through the implementation of key quality principles, for instance those devised by Gehl, such as his investigations into the theoretical constructs of *protection, comfort, and enjoyment*, one could theoretically initiate a process of urban renewal one intervention at a time.

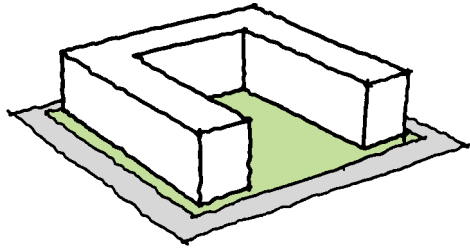
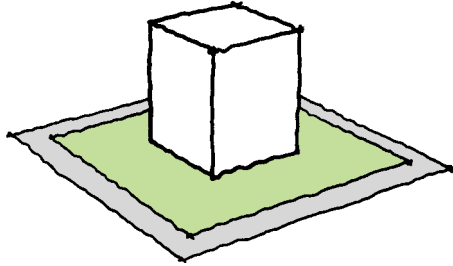


Fig. 50_ Emphasis on the building volume

Fig. 51_ Emphasis on the spaces which the buildings define

However, urban renewal realistically poses a threat to the historic urban fabric of the Old Synagogue and its context if not approached with conservation as a key proponent (as deliberated upon in the literature review). James Strike, the author of *Architecture in conservation: managing development at historic sites* (1994:3), asserts that the reality of new architecture built at historic sites and the question of successfully interfacing with historic buildings is an issue that stirs up much debate. The author intends on confronting this debate by developing a clear understanding of the specific problems of the Old Synagogue and its historic context. This approach entails investigating concepts such as (Strike, 1994:25-27):

- Layering of meaning: when more than one reference is stated on the same building,
- Association: a new piece of architecture designed to remind the observer of another building,
- The role of perception: the idea of forming an association between a piece of new architecture and a historic site, and
- Symbolism: the simplest starting point is the idea of building as a symbol.

The theoretical position of Contextualism impacts the research investigations on an urban scale, and poses an important question which will need to be tangibly addressed through the design development. In closing, that question is: how can urban renewal be approached within the broader context of the Old Synagogue without losing the history and heritage of this urban fabric?

4.2 Urban design_

4.2.1 Introduction_

This section unpacks the urban framework proposal which is a response to the findings of the context analysis, specifically those pertaining to the historic character of the inner city. Paul Kruger Street is one of two major axes defining the original layout of Pretoria. It is an important structuring element within the urban fabric and runs through the heart of the inner city. There are many important historic buildings and spaces along its axis such as:

- Pretoria Station – the most southern focal point
- City Hall and Pretorius Park
- the ‘Raadsaal’ and Palace of Justice framing Church Square,
- the High Court
- the Old Synagogue
- Panagos Building
- Aspasia Building, and
- the National Zoological Gardens to the north.

The street also retains some traditional street elements such as Jacaranda trees, granite curbs, and façade typologies. The historic buildings and remnants of late

19th, early 20th century urban elements contribute to the inner city’s historic quality. Open spaces also form an important element of Pretoria’s inner city. They provide a platform for a variety of activities including:

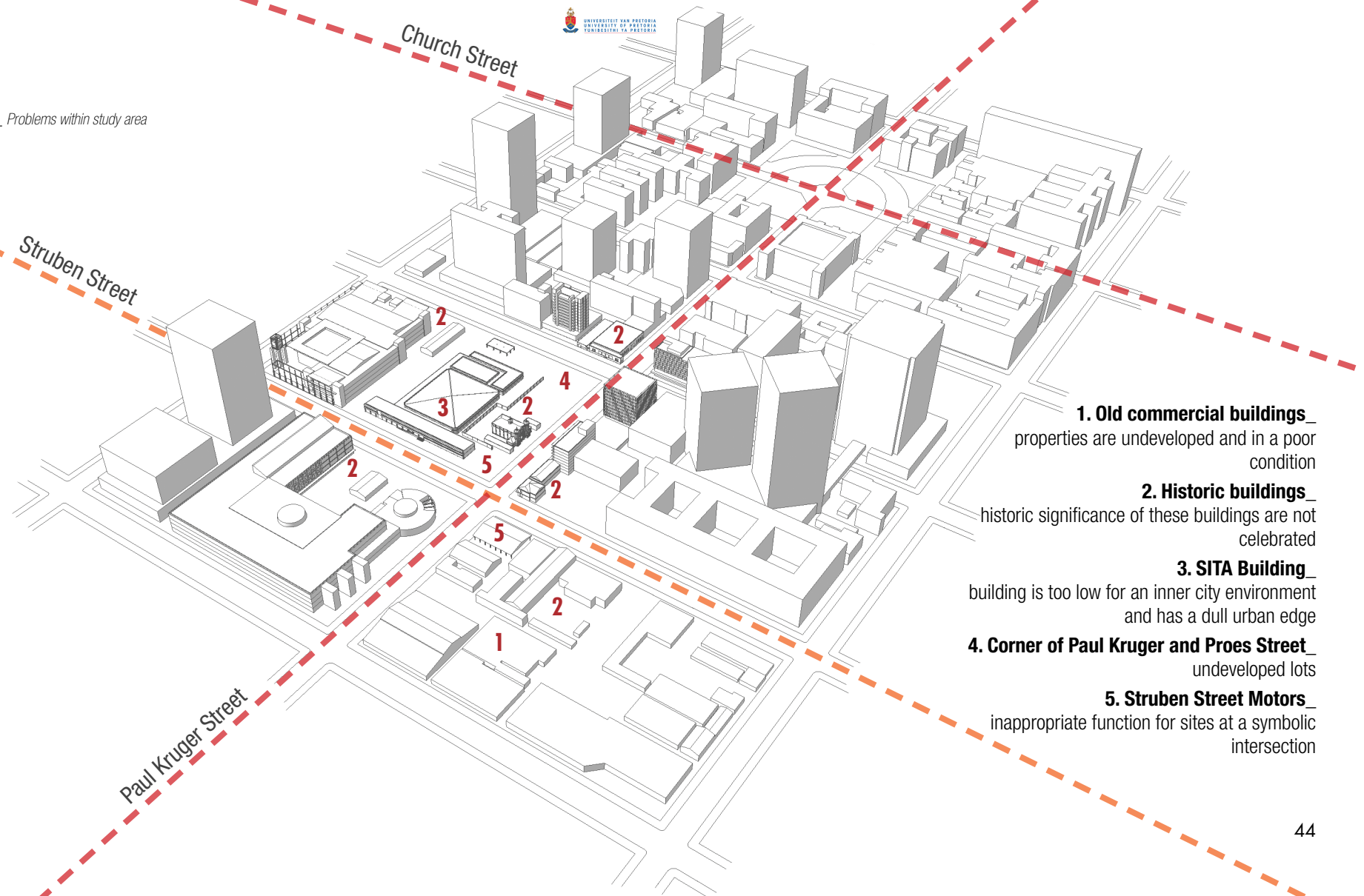
- trading
- socialising
- resting
- educating, and
- entertaining.

However, too often open spaces are neglected and do not form a coherent part of the urban fabric resulting in lost, underutilised space which is perceived as dangerous (Paul Kruger Street Spine Urban design framework, 2000). The current situation within the northern portion of the inner city, specifically at the Old Synagogue and environs, is the neglect of historic buildings with heritage value. The Department of Basic Education, and the National Library made a concerted effort to restore and re-appropriate the Jansen House and Old Victorian Boarding House respectively, yet built heritage such as the Old Synagogue, Old German Club, Koopkrug Building, and Woltemade Building remain in a poor condition. The Tshwane Inner City Spatial Development Framework attributes this neglect to a

lack of private investment in the northern portion of the inner city and a negative perception of the area (Re-Kgabisa Tshwane Project, 2006).

The Struben Street / Government Boulevard corridor represents an important threshold at its intersection with Paul Kruger Street. The whole length of Paul Kruger Street is well used although large sections north of Struben Street remain under-developed. This could be attributed to a lack of pedestrian movement which stimulates passing trade (Paul Kruger Street Spine Urban design framework, 2000). Essentially, Paul Kruger Street requires a binding and strategic development which encourages pedestrian activity along its entire length within the inner city.

Fig 52_ Problems within study area



- 1. Old commercial buildings_**
properties are undeveloped and in a poor condition
- 2. Historic buildings_**
historic significance of these buildings are not celebrated
- 3. SITA Building_**
building is too low for an inner city environment and has a dull urban edge
- 4. Corner of Paul Kruger and Proes Street_**
undeveloped lots
- 5. Struben Street Motors_**
inappropriate function for sites at a symbolic intersection

4.2.2 Historic [re]discovery_

The framework proposal deals with the redevelopment of Paul Kruger Street into a pedestrian friendly boulevard. A dedicated tram public transport system is proposed as a link for the various activities, precincts, points of interest, and transportation nodes along the Paul Kruger Street axis. The objective is to create a vibrant, healthy and safe pedestrian oriented environment. 'Historic [re]discovery' aims to implement lessons from the past to tackle the challenges of a present-day inner city environment, whilst paying homage to, restoring, and creating awareness of the historic fabric of Paul Kruger Street. The development should act as an infrastructure spine within the inner city; stimulating existing development, attracting new ones, and strengthening the public space network.

The urban framework consists of three major components:

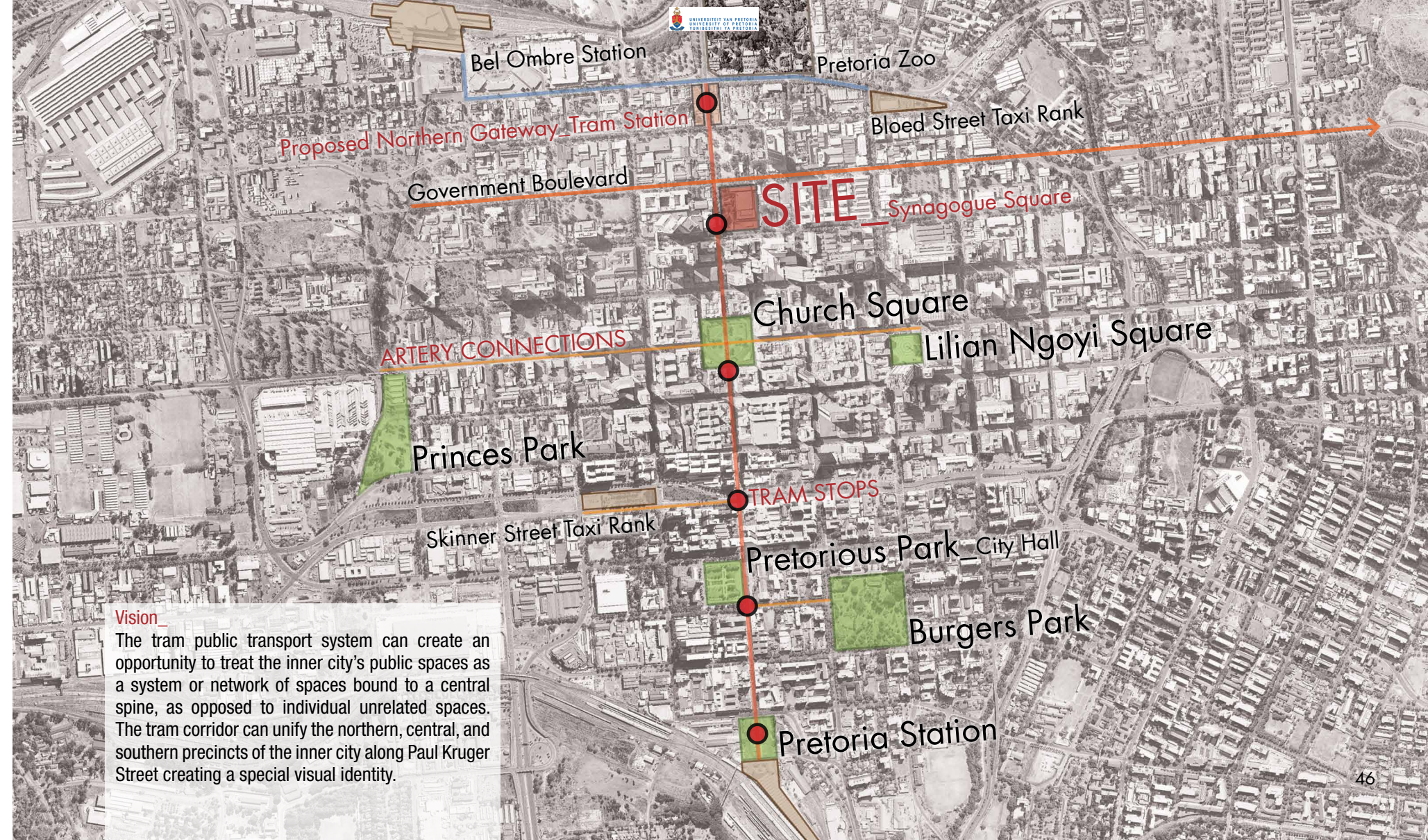
- a central public spine which accommodates a public boulevard and tram stops
- the introduction of a public square and green space into the northern portion of the inner city, and
- a northern gateway tram station which signifies the entry and exit of the inner city from the National Zoological Gardens.

The boulevard is a secondary circulation space to that of the existing sidewalks and is lined by an additional row of Jacarandas. The tram stops are located in the centre of the boulevard with the tram lines to the sides. The principle behind reprioritising the vehicular and pedestrian movement patterns on Paul Kruger Street is to create meaningful public open spaces for visitors, users and inhabitants of the city. The layer of memory as a design informant connects the urban community to the past.

4.2.3 Objectives_

The objective of the urban framework is to create a mixed traffic environment that is pedestrian friendly but does not unduly impair traffic flow and on-street parking. A pedestrian orientated Paul Kruger Street allows the city user to engage with the urban fabric and amenities on offer at a slower pace, thus stimulating the street with activity and encouraging exploration. The concept aspires to:

- connecting dissociated elements along Paul Kruger Street
- making the different precincts and activities along its length easily accessible, and
- unifying historic buildings with the contemporary direction the urban environment is heading in.



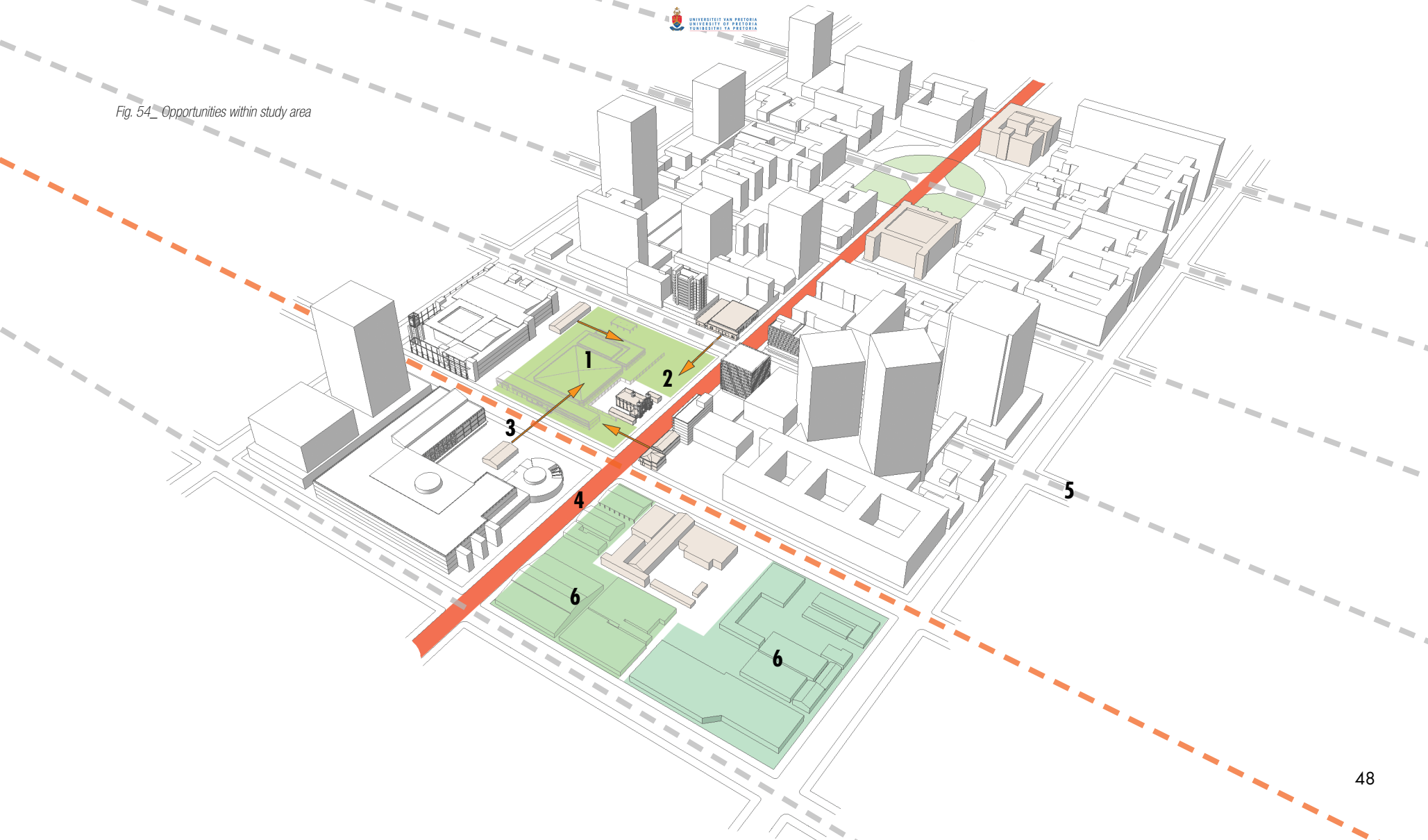
Vision_

The tram public transport system can create an opportunity to treat the inner city's public spaces as a system or network of spaces bound to a central spine, as opposed to individual unrelated spaces. The tram corridor can unify the northern, central, and southern precincts of the inner city along Paul Kruger Street creating a special visual identity.

4.2.4 Contextual opportunities and interventions_

1. Location of the Heritage and Mediation Centre which surrounds a proposed civic square
2. Proposed public green space that forms a part of the central infrastructure and green spine
3. Relationship between the Heritage Site and historic buildings
4. Development of a Tram public transport system and green corridor which can strengthen the connection between the different precincts and built heritage on the 'decumanus' axis of the inner city
5. establish a prominent connection with the secondary east - west arteries
6. Densification of the area by replacing existing low-rise buildings with mixed-use / Government Department based buildings

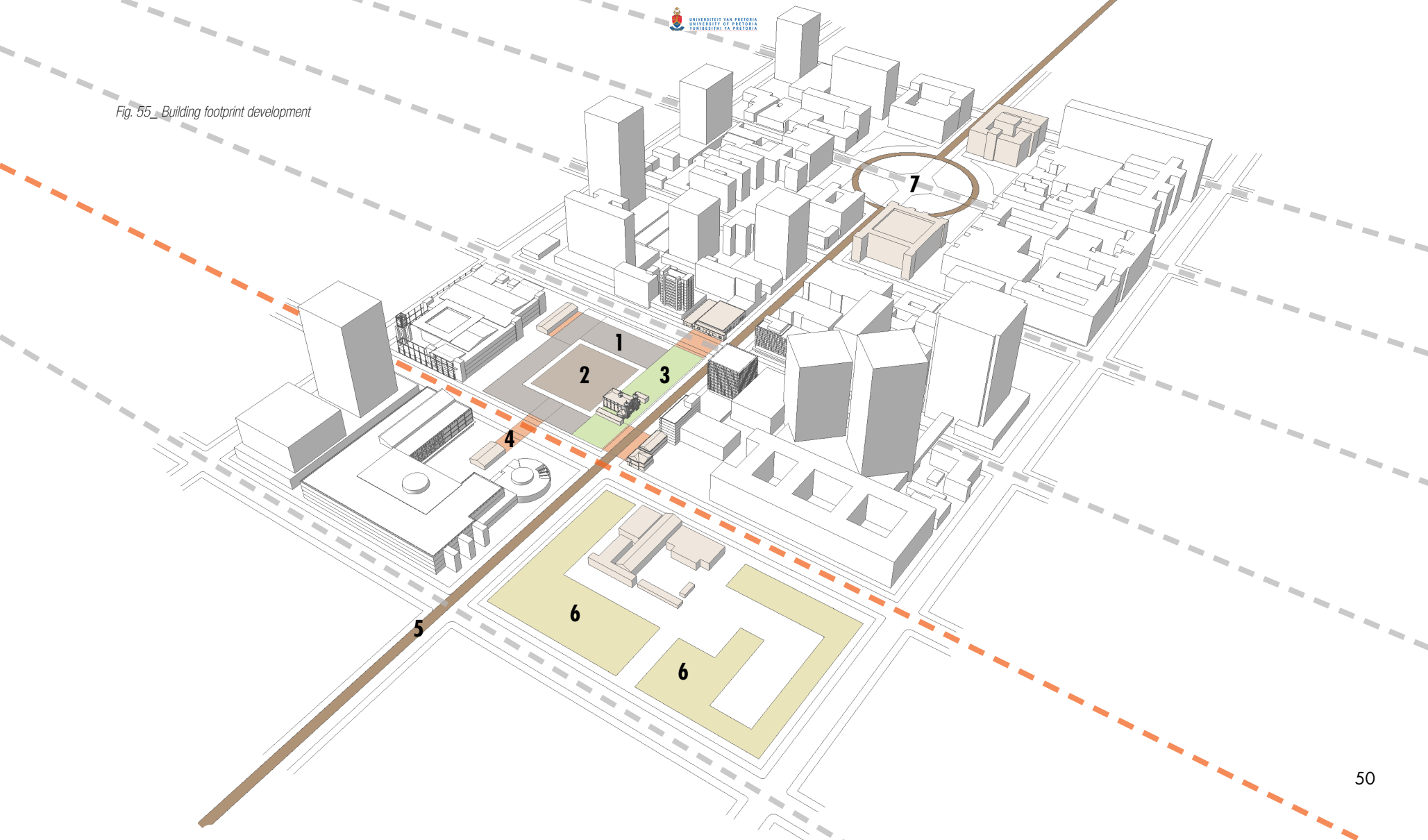
Fig. 54_ Opportunities within study area



4.2.5 Footprints_

- 1. Heritage and Mediation Centre footprint sits back respectfully from the Old Synagogue whilst creating an active urban edge along Struben Street and Proes Street**
- 2. Proposed civic square footprint gives the Old Synagogue 'breathing space' and allows the heritage building to be appreciated as an element in the landscape**
 - 3. Proposed green space serves the surrounding community**
 - 4. Footprint to recognise and respond to surrounding historic buildings**
 - 5. Proposed tram line**
 - 6. Proposed new mixed-use / Government Department building footprints**
 - 7. Proposed tram circle within Church Square in recognition of historic trams**

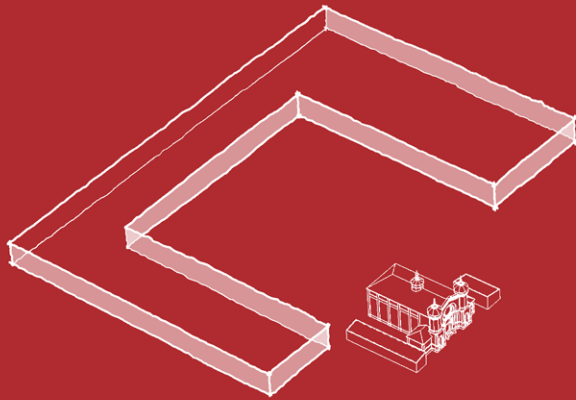
Fig. 55 Building footprint development



4.2.6 Pragmatic influences on mass development_

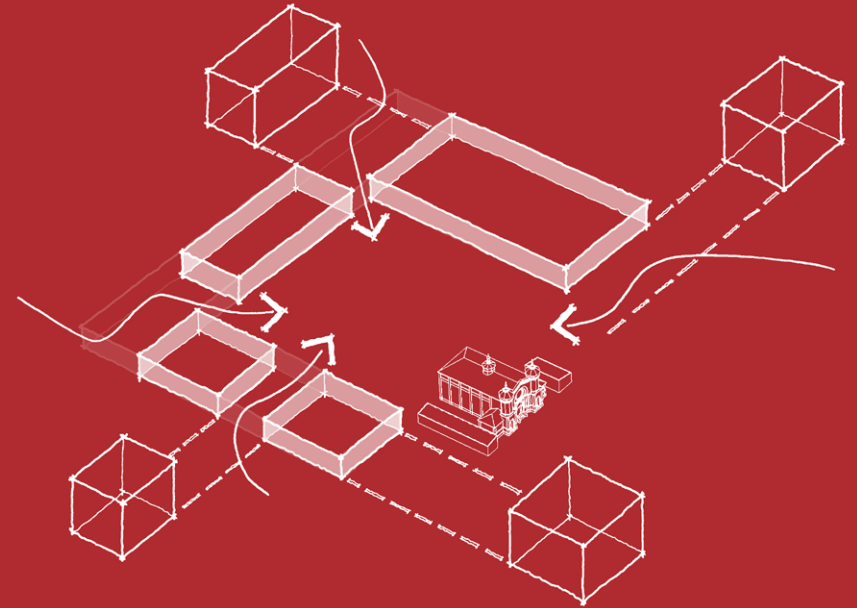
Edges_

Ground level with active urban edges.
Edges frame and define sidewalk and square.



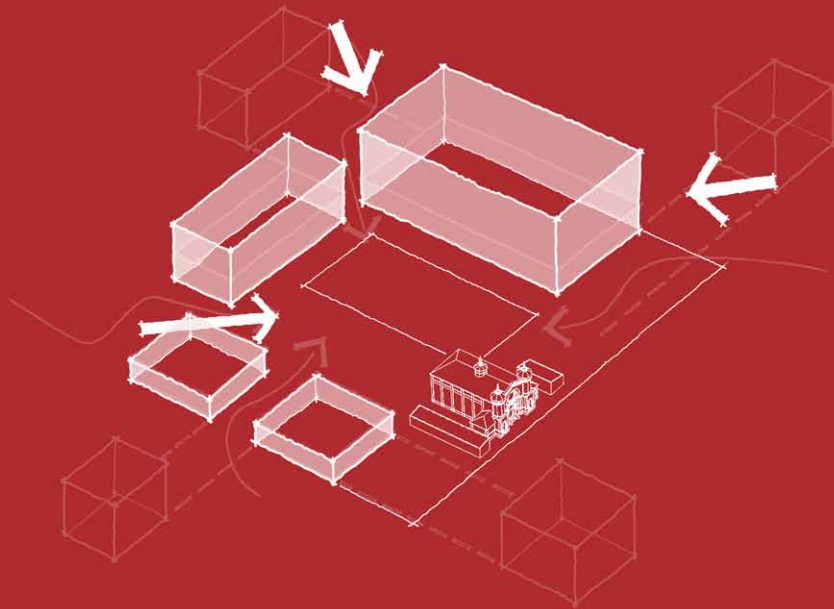
Access_

Surrounding historic buildings are design generators.
Creating unobstructed views to these buildings addressed the issue of permeability and access to the square.



Climate_

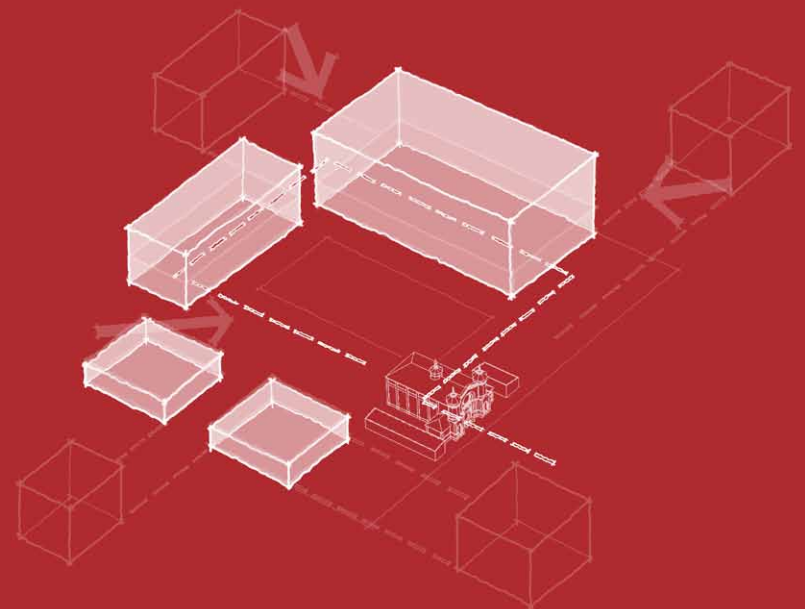
Taller masses are located on the southern edge of the site to reduce over shadowing of the square. The increased height to the south also creates a buffer against south westerly prevailing rain and south easterly winter wind.



Route_

The Heritage Route is established towards the inside of the U-shaped layout thereby activating and addressing the square.

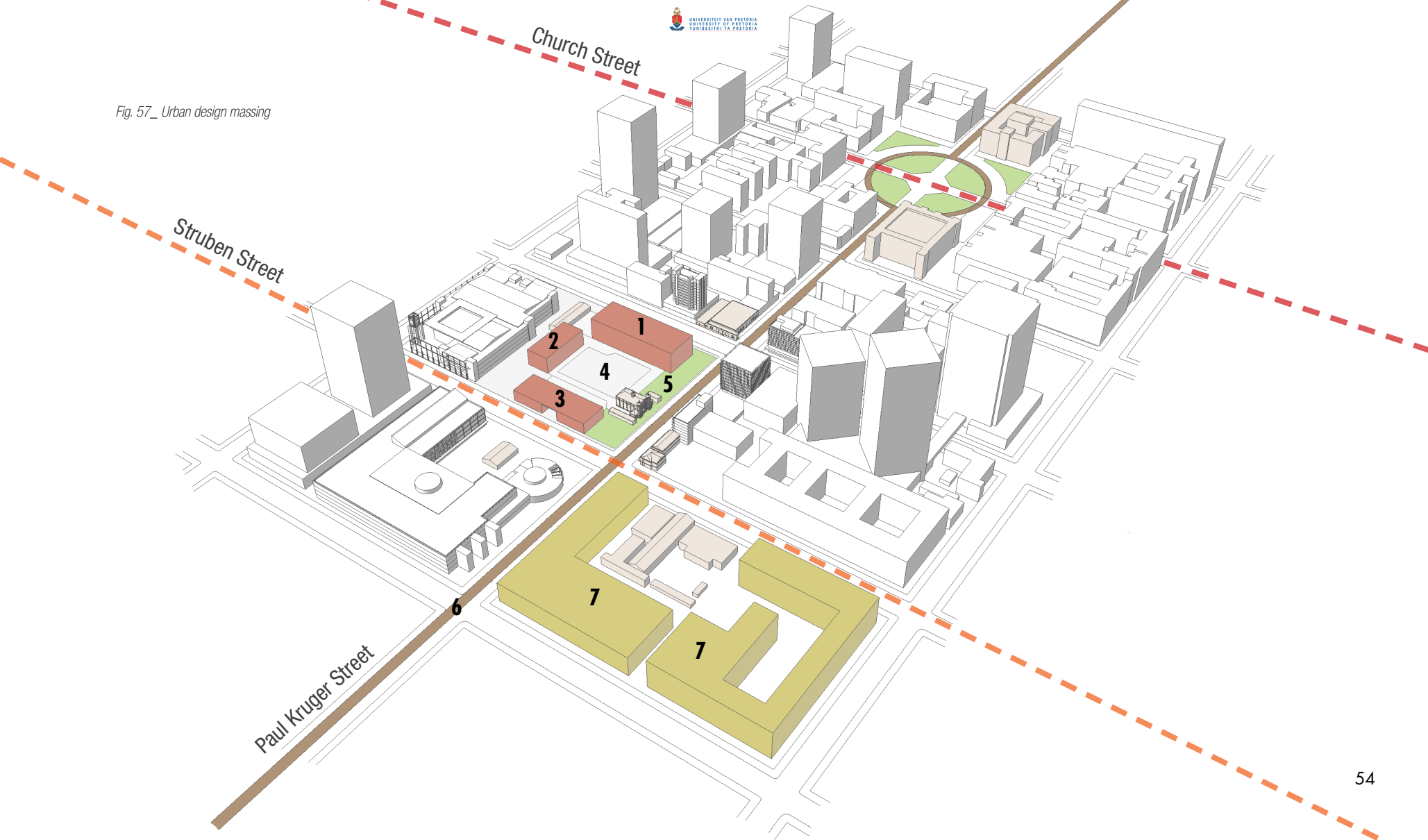
The street facing facades are thresholds which absorb the vehicular and passing pedestrian energy.



4.2.7 Massing_

- 1. Heritage and Mediation Centre (design project)**
- 2. Exhibition and Community hall (framework)**
- 3. Visitors welcome centre and restaurant (framework)**
- 4. Civic square**
- 5. Public park**
- 6. Jacaranda lined tram and pedestrian corridor**
- 7. Mixed-use/Government Department buildings**

Fig. 57_ Urban design massing



CHAPTER 05

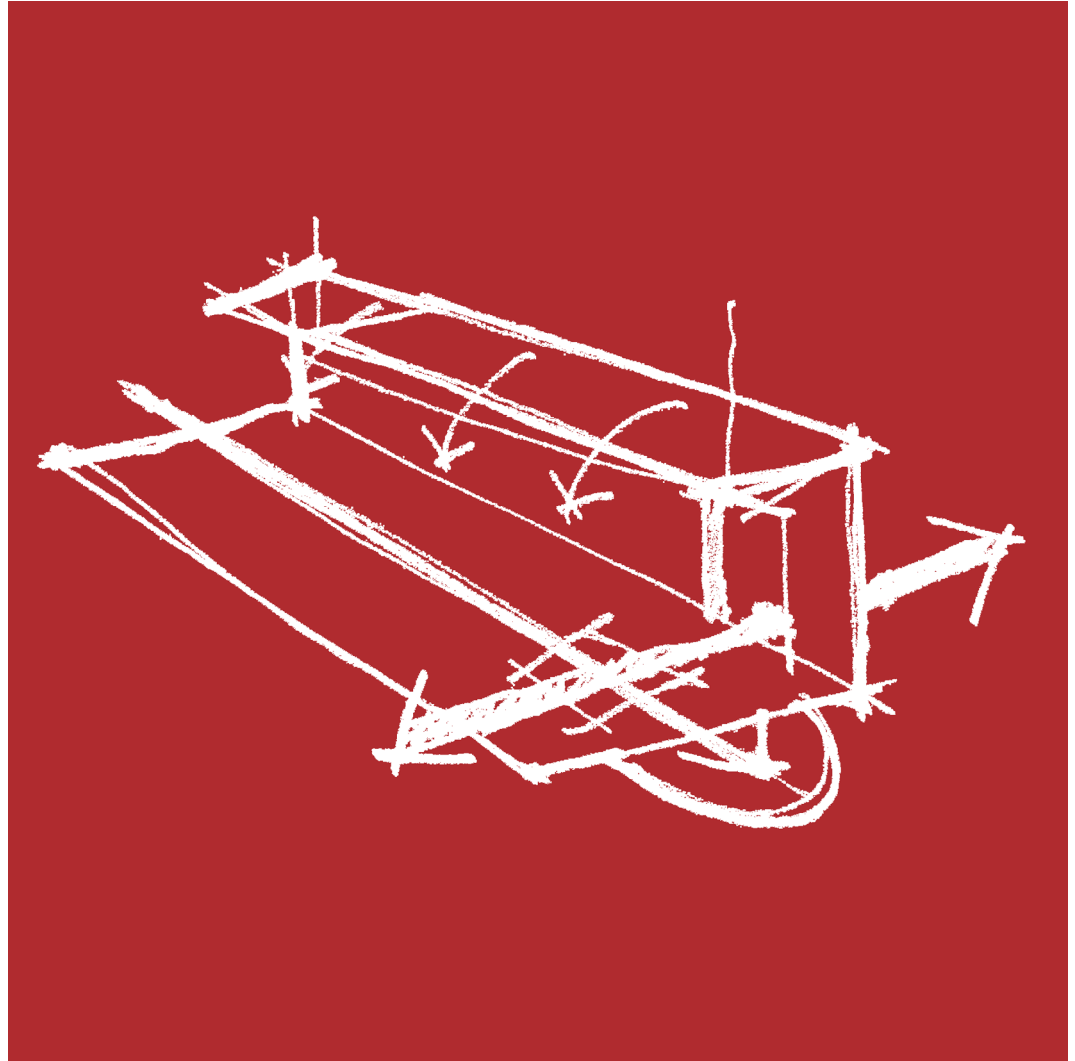


Fig. 58_ The significance of movement through the Old Synagogue



CONCEPT

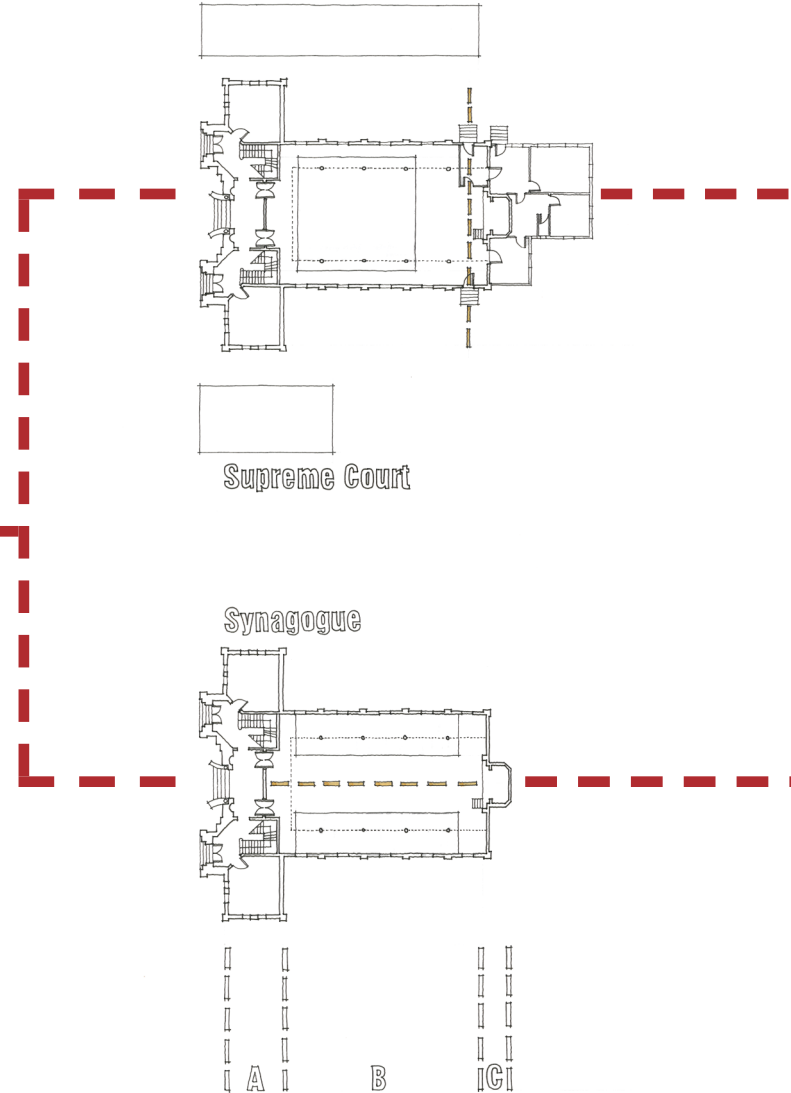


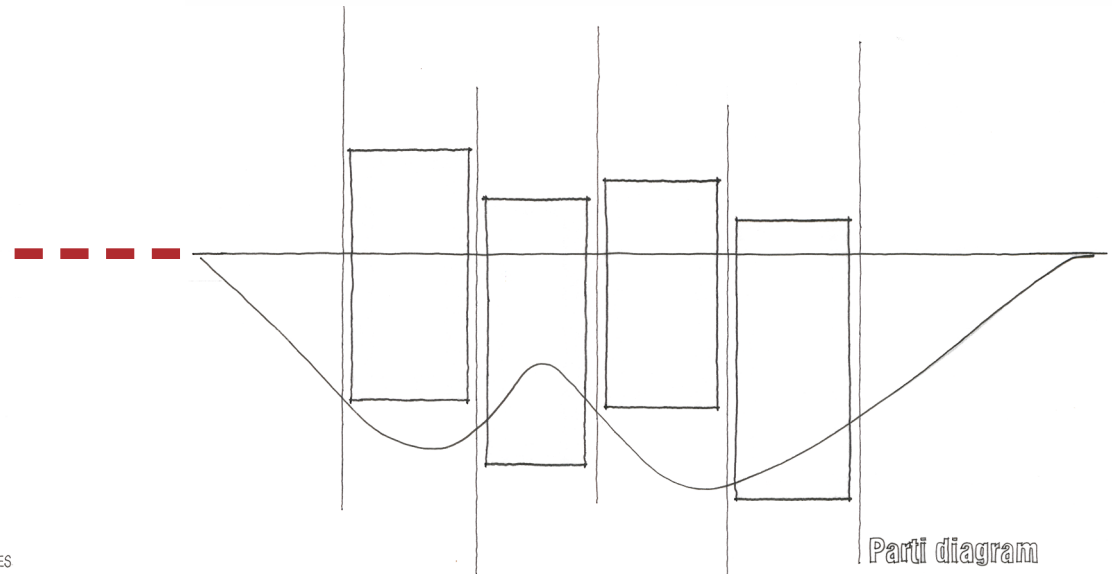
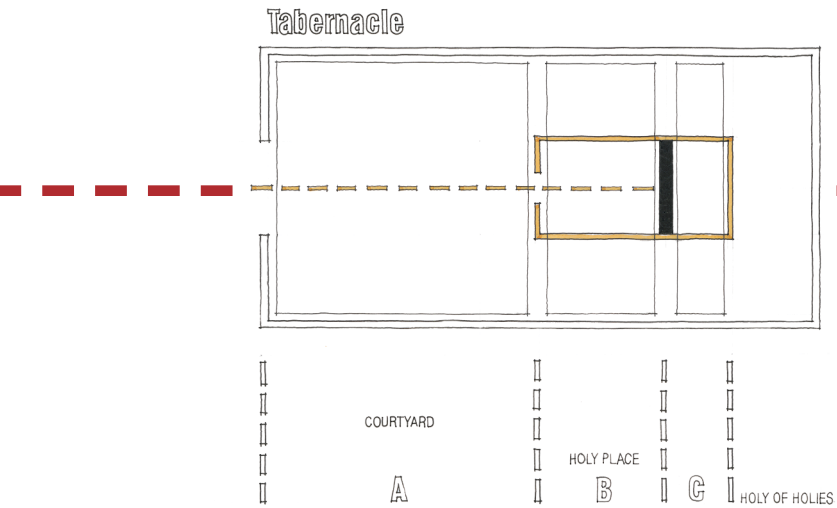
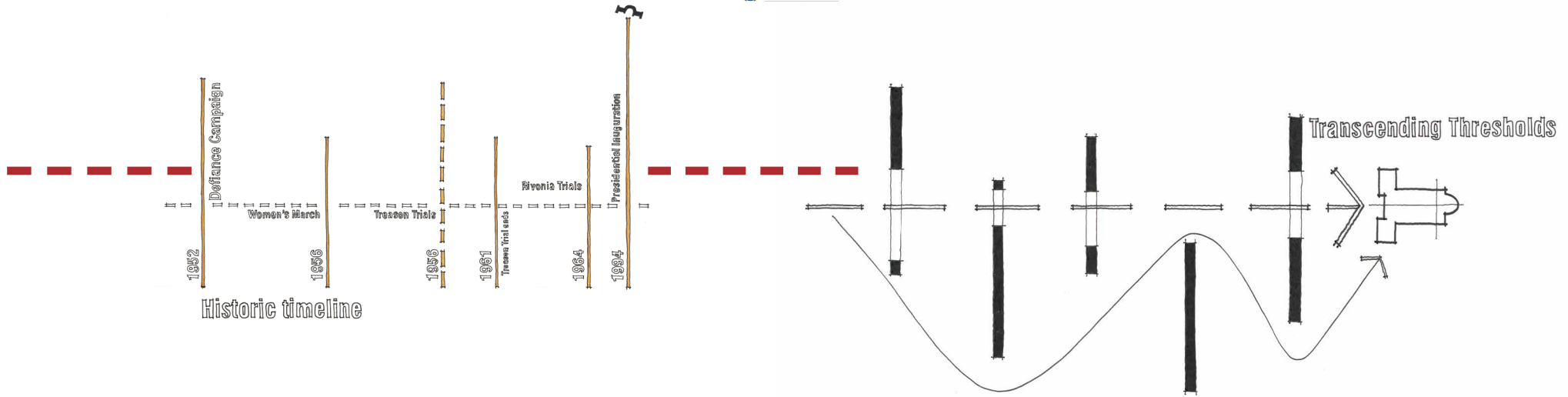
ARRIVING AT A PARTI DIAGRAM
5.1

The concept behind design development is based on understanding the significance of the Old Synagogue in relation to Space and Time. The Synagogue was designed spatially as a house of worship, reflecting Jewish religious traditions regarding movement and hierarchy of spiritual spaces. Important spiritual thresholds were entrenched into the design of the Synagogue and were inspired by the most holy of Jewish religious structures - the Tabernacle. Crossing tangible spatial thresholds symbolised crossing intangible spiritual thresholds.

This historic building played a crucial role in the Liberation Struggle as a Supreme Court during the apartheid era. This period of the Old Synagogue's lifespan resulted in the building being chronologically linked to South Africa's liberation. Each uprising, campaign, and trial during apartheid are symbolic events which occurred over a period of forty years. The Old Synagogue made its contribution to that historic timeline.

Fig. 59_ The Old Synagogue in 1958 and today
Fig. 60_ Parti diagram development







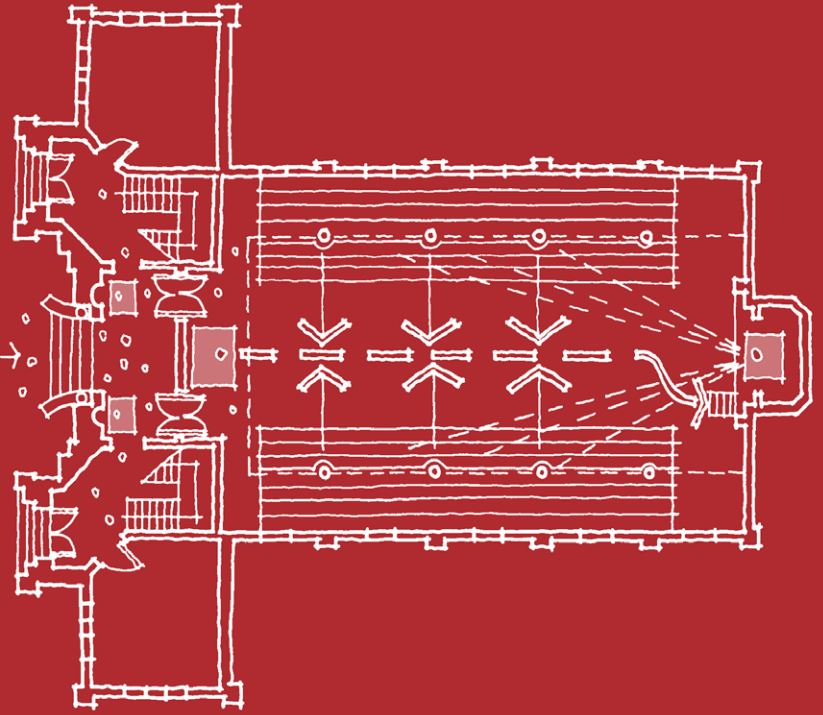
Nelson Mandela with Moses Katane (left) leaving the court after the State vs. Treason Trial, 1 October 1961
© University of Pretoria Archives

THE SIGNIFICANCE OF ROUTE

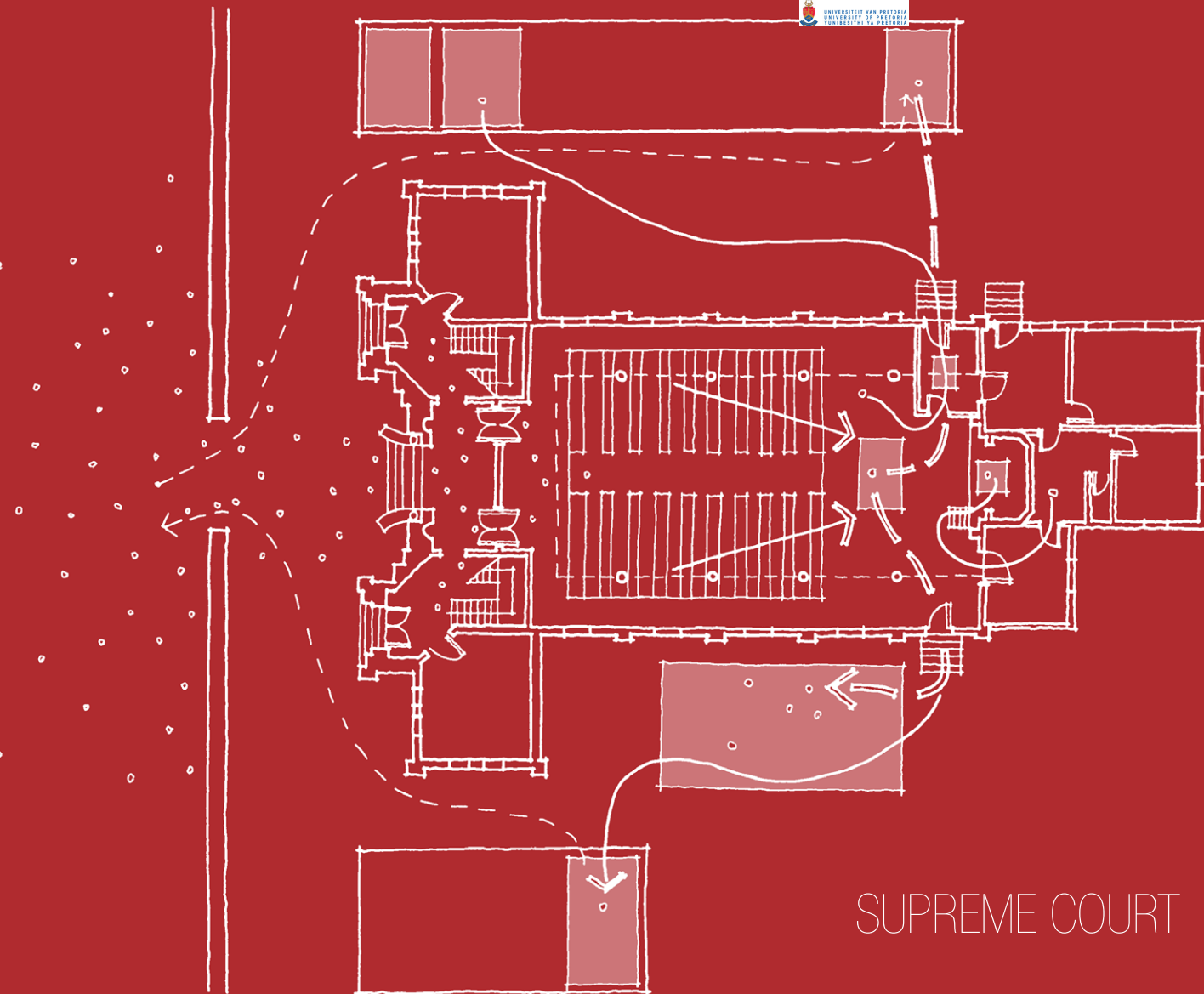
5.2



Fig. 61_ Nelson Mandela journeying out of the Old Synagogue triumphantly after the Treason Trials
 Fig. 62_ Investigations into movement patterns in and around the Old Synagogue



HOUSE OF WORSHIP



SUPREME COURT

In order to commemorate the Old Synagogue and reveal its significance, it is important to understand how the building was used during its two historic incarnations. As a house of worship the buildings function was predominantly internalised, whereas the Supreme Court programme required greater diversity of site usage. Access to the holding cell and office outbuildings were critical for the controlled movement of the Defendants; and their separation from the general public/courthouse visitors.

Historically, the building was not the focal point, instead played host to a greater purpose. As a house of worship, the building housed scrolls of the Torah (Jewish Holy Book). It is regarded as the 'Holiest of Holy' and was the focal point of the worshipping congregation. Later, the Defendants within the Supreme Court were the focal point around which activity and public attention revolved.

In both instances 'route' gave significance to the elaborate structure, therefore the rediscovery of route in the buildings forth incarnation as a Heritage Centre is crucial to its narrative.

5.3 Case study_

Liliesleaf Liberation Centre [2008] Mashabane Rose Associates architects and urban designers Rivonia, Johannesburg

This centre was analysed with the purpose of understanding how to implement a sensitive approach towards designing commemorative structures on a heritage site. The patterns and sequences of usage on this site are investigated to guide the authors decision-making process.

Liliesleaf farm - the birthplace of the MK (former military wing of the ANC), and secret headquarters of the ANC's armed wing Umkhonto we sizwe (spear of the nation) – was raided on 11 July 1963 by apartheid government security police. The raid led to the uncovering of Operation Mayibuye (meaning 'comeback') which detailed how the resistance movement intended to overthrow the apartheid regime. Many of the senior ANC leaders who were arrested in the raid went on be part of the 'Rivonia 12' - accused and incarcerated for Treason (Low, 2008:42).

Nestled unassumingly within the leafy suburb of Rivonia, Liliesleaf Liberation Centre follows the grade of the land on stepped terraces for minimal contextual impact. On entering the site, visitors are received by an exposed concrete and face brick Resource Centre, only dematerialised by a subtle manipulation of light.

One soon discovers that the resource centre is not the starting point of the route through the site, and redirects course towards an inconspicuous pathway, were the dubious start of the journey is redeemed by a slowly revealing sunken view of the historic Manner house. The Visitors Centre stands respectfully in juxtaposition with the Manor house reflecting the image of the historic building back towards the observer as one passes between old and new. The *visual silence* of the new is immediately apparent (Low, 2008:42).

Continuing on route to the outdoor reception foyer, out of natural curiosity one progresses un-deviated towards the rooftop viewing terrace. The overall view of the historic buildings affords the visitor an opportunity to pause and orient oneself with the site. Within the Manor house visitors are confronted with interactive exhibits and displays with progression through the different rooms. Finally visitors exit through the back door free to explore the centrally located and sensitively restored outbuildings.

Terraced steps mediate between the natural landscape and restored outbuildings. Gentle risers encourage those journeying through the site to sit, reflect, and absorb the history of this environment. Furthermore, low walls that are conducive to sitting are evident throughout the site. Stopping and experiencing the exhibit route at one's own pace is a distinct attribute of Liliesleaf,

and allowed the author the opportunity to examine the interfaces between old built fabric and restorative additions. Clear separation of materials ensured a clear distinction between old and new. Un-restored facebrick largely constitutes old, and off-shutter concrete and bronze anodised aluminium framed glass distinguished the new. This material palette was applied to the new structures to *seek a silent repose in the historic landscape* (Low, 2008:42).

One might argue that the potential of the natural landscape has not been fully realised due to its disconnection from the Resource and Visitors centre. Moreover the weak interface between heritage site and residential context does not aid the process of strengthening community relations, as alluded to by Christa Kuljian (2007:88) in chapter 1. However it is difficult to question the sensitivity with which the historic buildings were treated in terms of response and restoration. In the authors opinion the architectural interventions implemented at this Heritage Centre are successful in highlighting the historic significance of the original buildings and intangible history of the site.



A Exposed concrete and facebrick Resource Centre inspired by restored outbuildings



B Start of exhibit route - flanked by permanent exhibits and historic Manner House



C Glazed facade of Visitors Centre offers visual permeability and a reflective quality of the historic surroundings



D View from rooftop terrace - the begin of the sites specific narrative

E Gentle stepped terraces sensitively respond to the natural slope of the site

Fig. 63_ Site views

Fig. 64_ Site layout with route of exploration



5.4 Case study_

Hector Pieterse Memorial Museum [2002] Mashabane Rose Associates architects and urban designers Orlando West, Soweto

The purpose of analysing this building was to discover its contextual, formal, and functional response to a site of historic importance.

The Hector Pieterse Memorial Museum commemorates the 1976 Soweto uprising of black youth against Bantu education. The museum is a tribute to the 12 year old Hector Pieterse who was the first of hundreds of students to be killed by the police in the uprising (Joubert, 2009:130).

Irrespective of the direction of approach, visitors to the museum are immediately greeted by a stark cubic mass that is the Hector Pieterse Memorial Museum. The simple yet un-dismissible use of red brick echoes a deep relationship with the surrounding context of predominantly red brick houses. The manner in which the building has aged - evident in the appearance of the red brick facades - strengthens that relationship. Furthermore the scale and placement of the building reflect a sensitivity and respect for its physical context.

On navigating ones way from the designated parking and drop-off area towards the commemorative square,

the sterile facades that lead one around the building are interrupted by a fragmented square. Paving bricks, patches of grassland, and the precast concrete floor slabs that constitute the public square are bisected by a line of tall indigenous grass which connects the site where Hector Pieterse was shot to the entrance of the museum. The entrance stands at the highest point of the site and is identifiable by a concrete ramp that stretches into the square.

Before entering the museum, one intuitively becomes aware that the building displays a lack of vernacular tradition, other than the use of contextually appropriate red brick. Less noticeable is the fact that the visitor, by just being in the commemorative square is engaging with the exhibit route, which is only revealed once inside the museum. Within the building the exhibit route follows a ramping loop around a central memorial courtyard.

The exhibit route comprises of a series of inter-leading exhibition spaces where the walls contain text, images, and video footage documenting the 1976 uprising amongst other related historic occasions. The crux of

the exhibits - amidst relatively un-engaging information mediums - are strategically placed windows which frame views of township houses, the commemorative square, and other places relating to the uprising such as; the spot where Hector Pieterse was shot, the police station, and Orlando Stadium - the rally point for students (Joubert, 2009:130). Immediately one is able to decipher the formal rationale of the building. The building does not demonstrate a profound awareness of vernacular tradition because the vernacular tradition of the surrounding context is on exhibition from within the building. The significance of the historic surroundings is elevated in contrast to the starkness of the museum.

On exiting the museum one is guided along the edge of the commemorative square by undulating dry-packed stone walls. One side forming the backdrop to informal street trade, the other leading to a commemorative plaque dedicated to the students who lost their lives in the uprising. Finally culminating with the iconic photograph by journalist Sam Nzima of the then lifeless, now immortalised, Hector Pieterse.

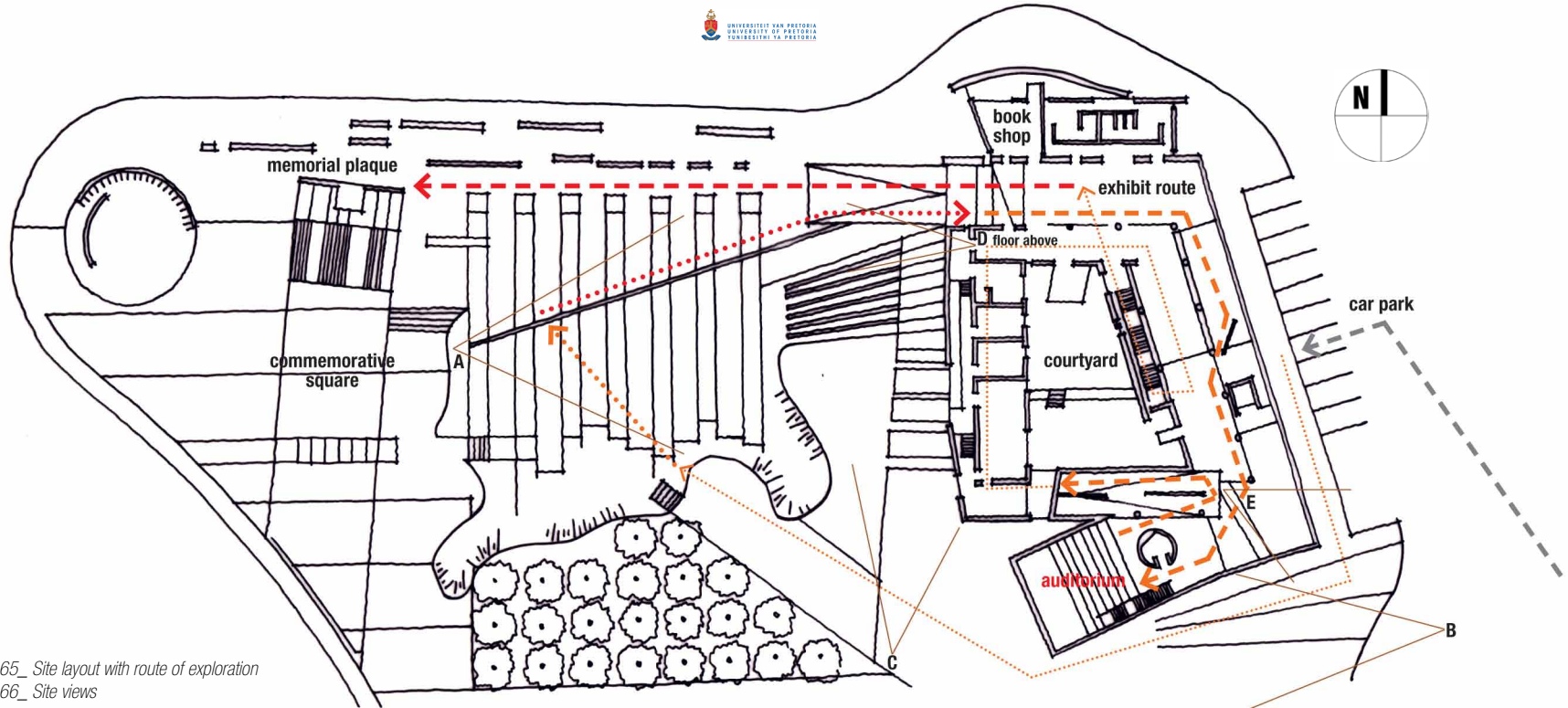


Fig. 65_ Site layout with route of exploration
Fig. 66_ Site views

A



B



C



D



E



A_Line of indigenous grass linking the site where Hector Pieterse was shot with the entrance to the museum

B+C_Symbolic red brick applied to sterile facades lead visitors around the building

D_Strategically placed windows are view portals which form part of the exhibition route narrative

E_Windows capture significant views

CONCEPTUAL DEVELOPMENT

5.5

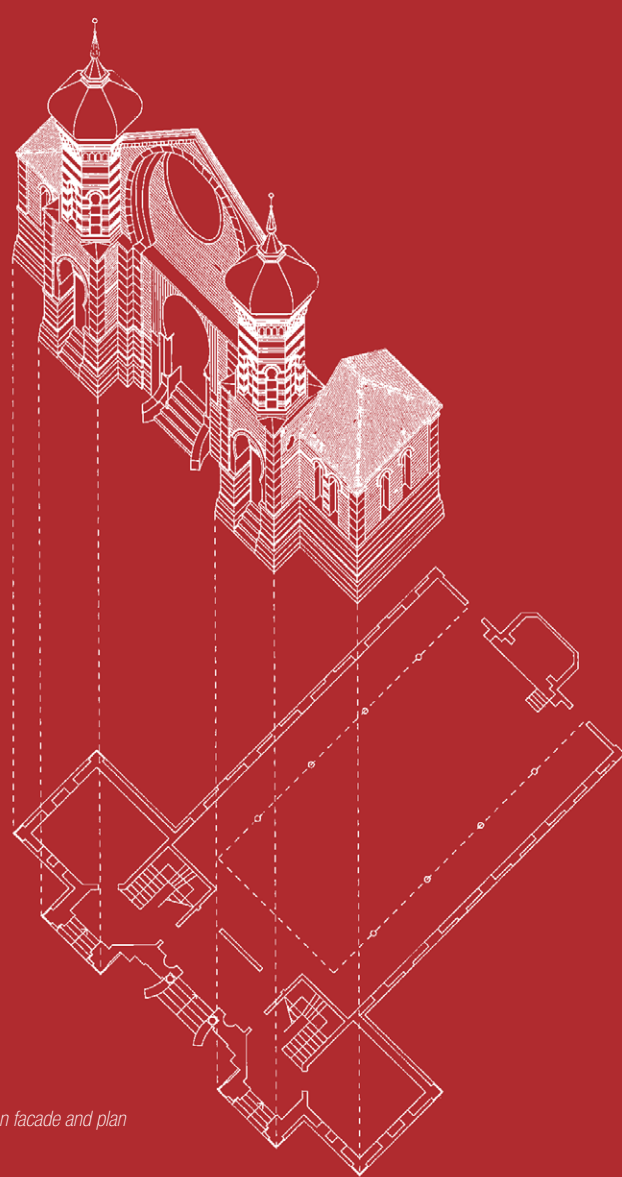
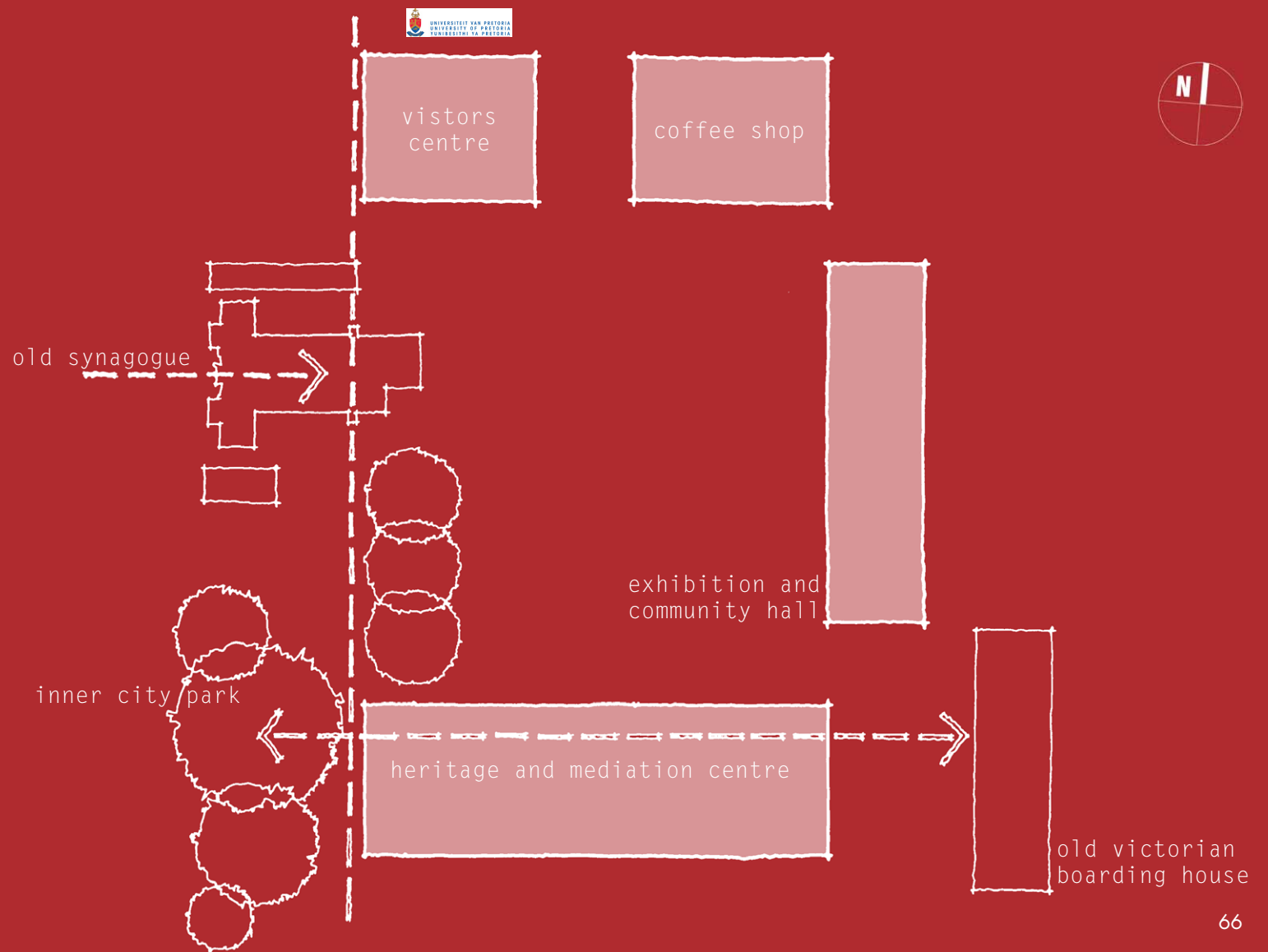
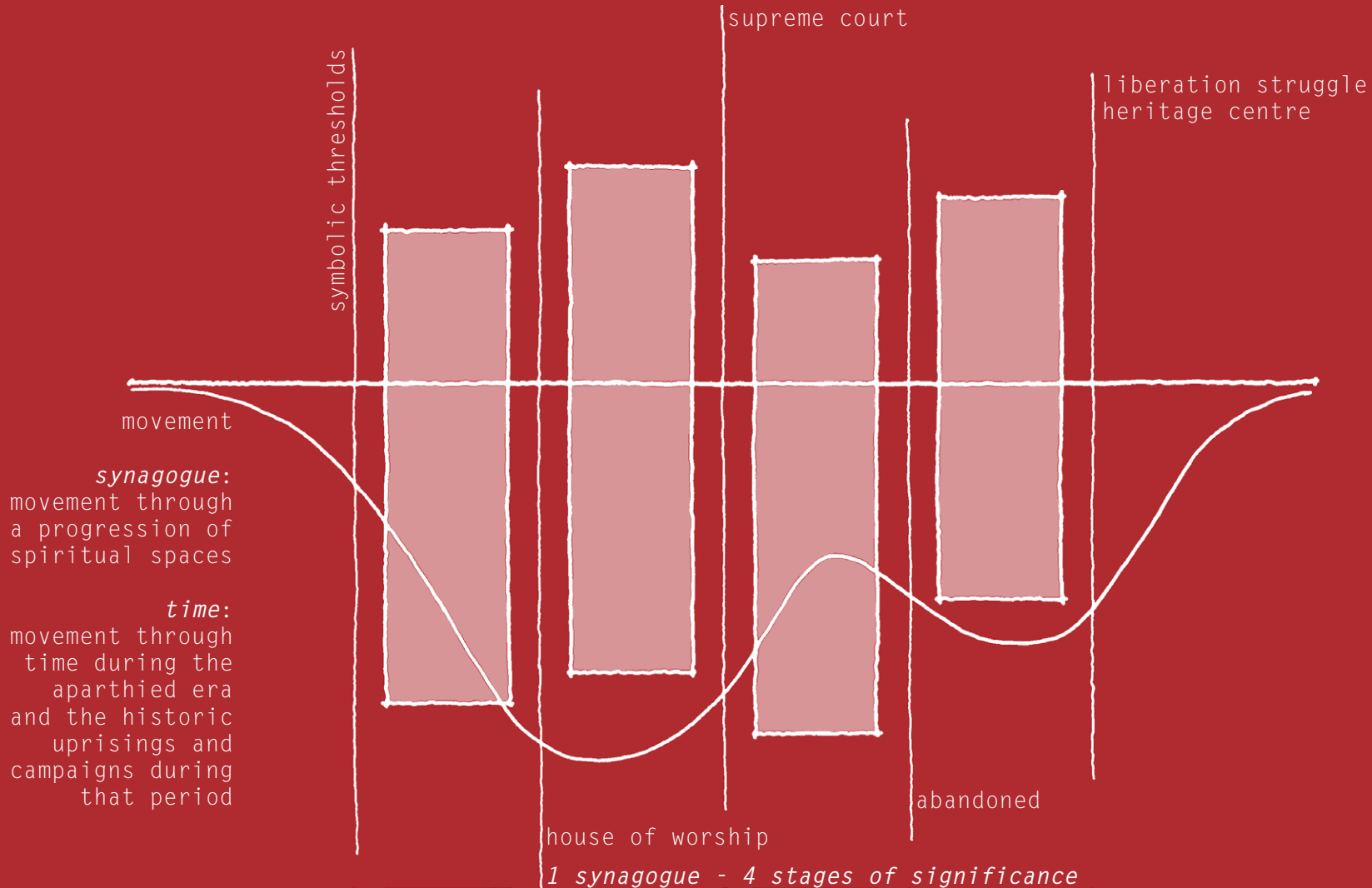


Fig. 67_ The Old Synagogue: relationship between facade and plan

PRAGMATIC SITE LAYOUT

Fig. 68





PARTI DIAGRAM
Fig. 69_



RELATIONSHIP BETWEEN
CONCEPT AND SITE

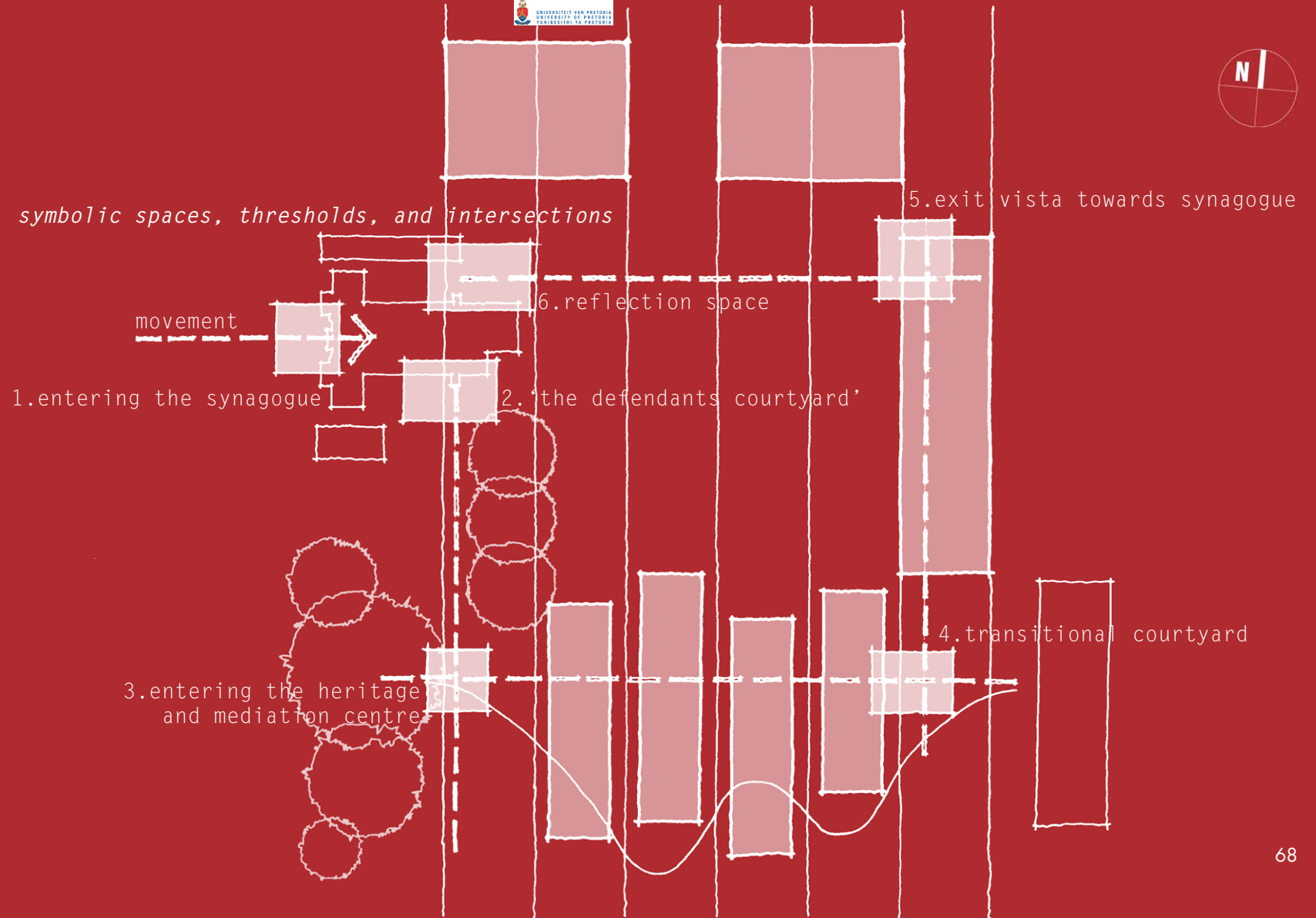
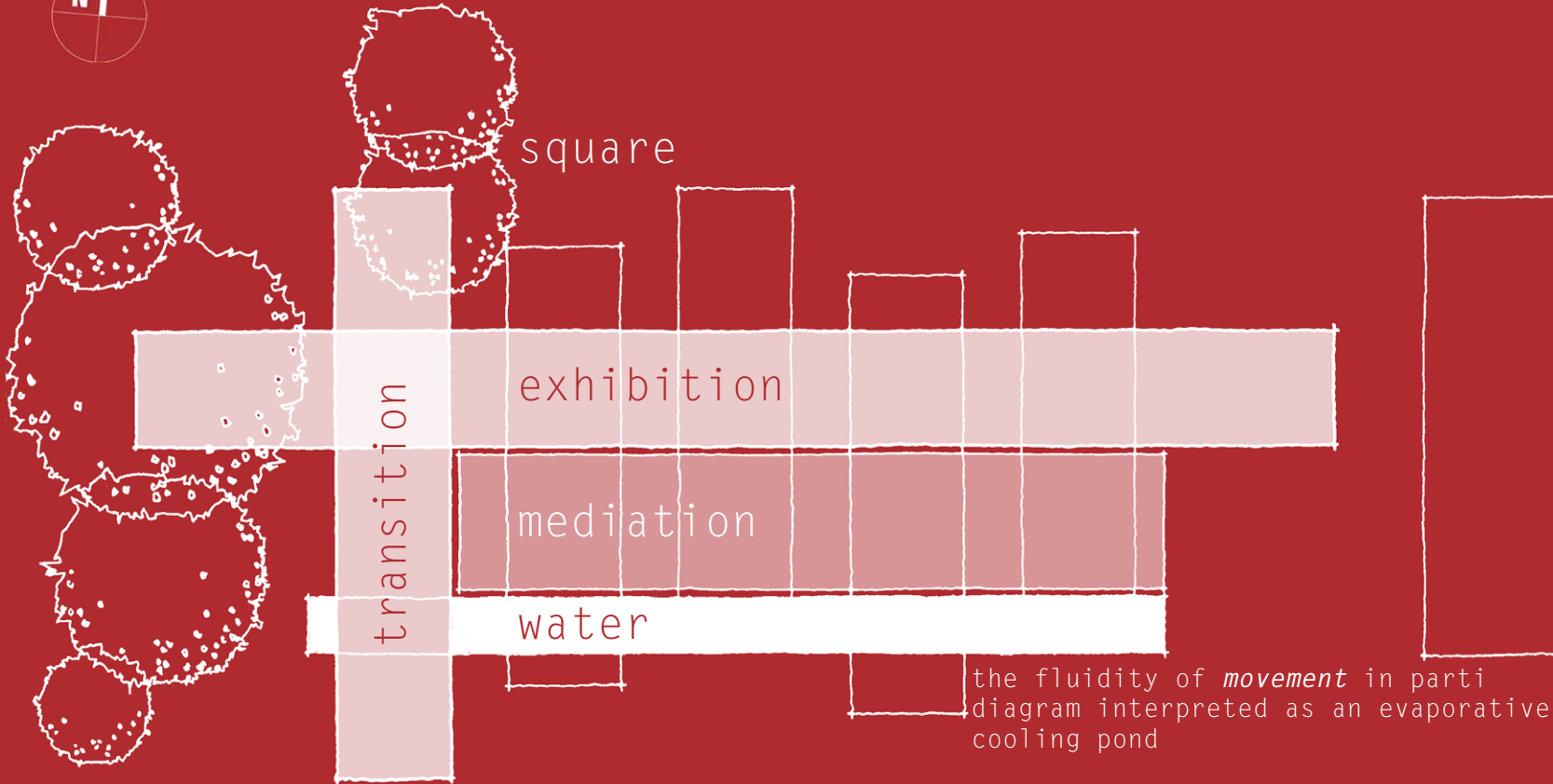


Fig. 70_



SPATIAL THRESHOLDS
Fig. 71_



SPATIAL STRUCTURING

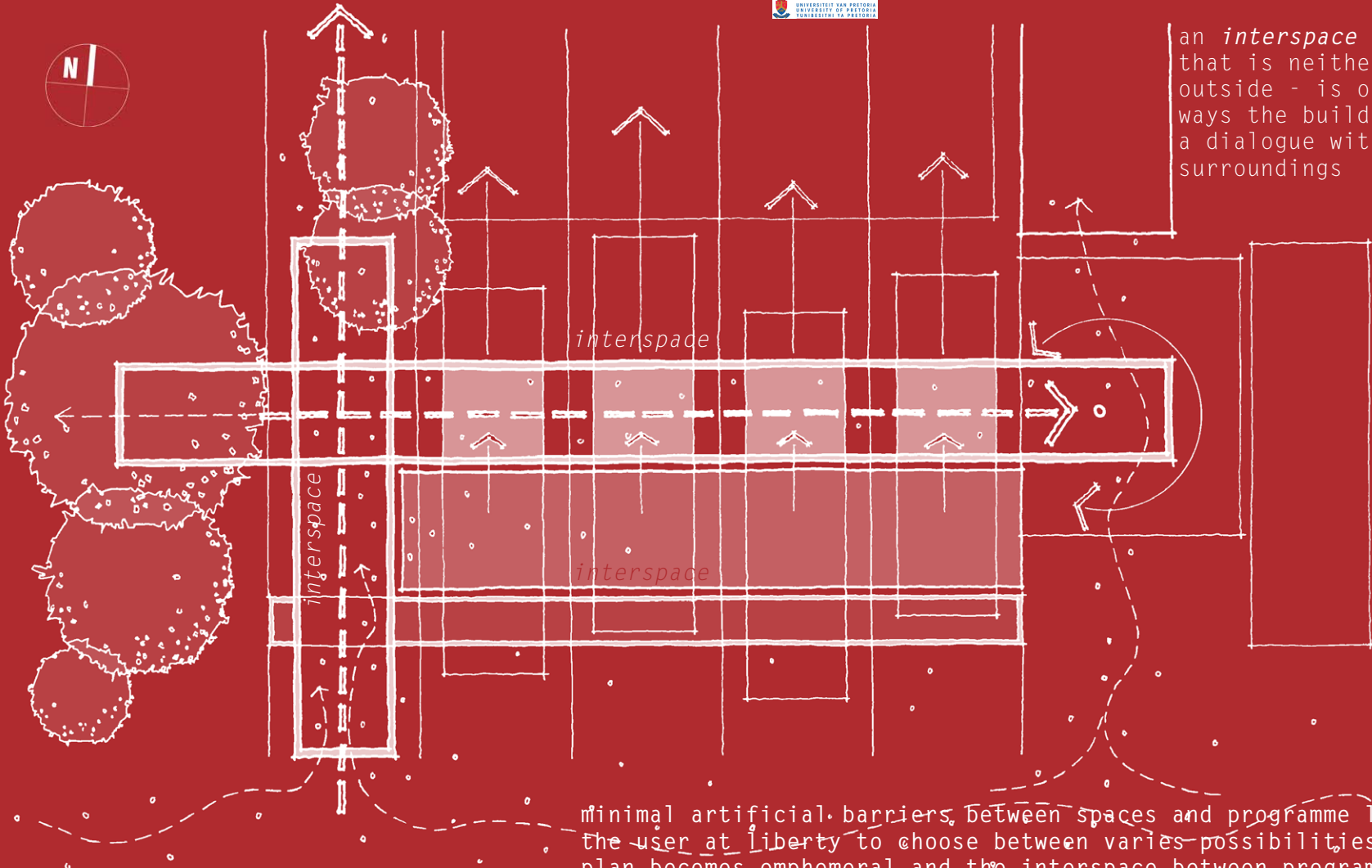
relationship with existing

engaging with nature

engaging with
the man-made

the mediation structures (upper level)
stagger forward and set-back allowing
programme to *'mediate'* between the
street and built envelope

Fig. 72_



an *interspace* - a space that is neither inside nor outside - is one of the ways the building creates a dialogue with its surroundings

MOVEMENT

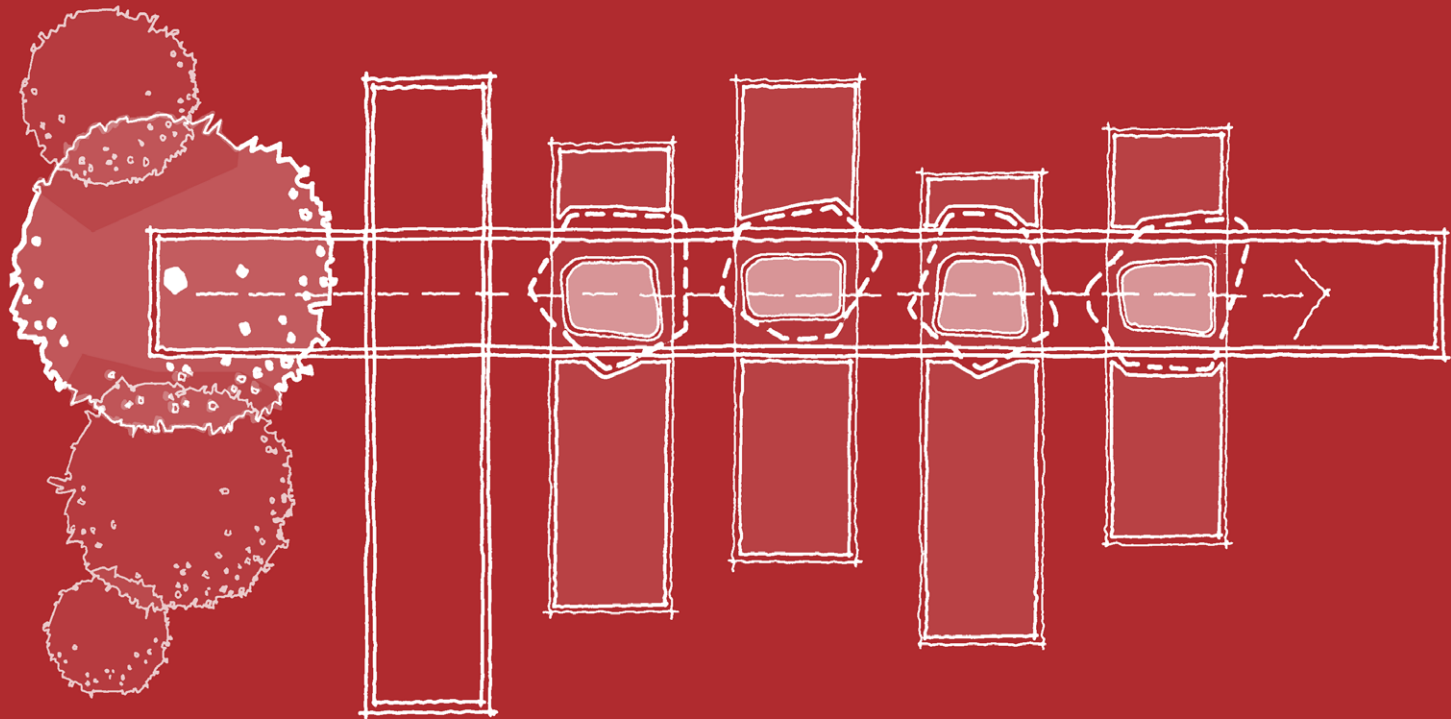
Fig. 73

minimal artificial barriers between spaces and programme leave the user at liberty to choose between various possibilities. The plan becomes ephemeral and the interspace between programmes defines space and allows them to co-exist

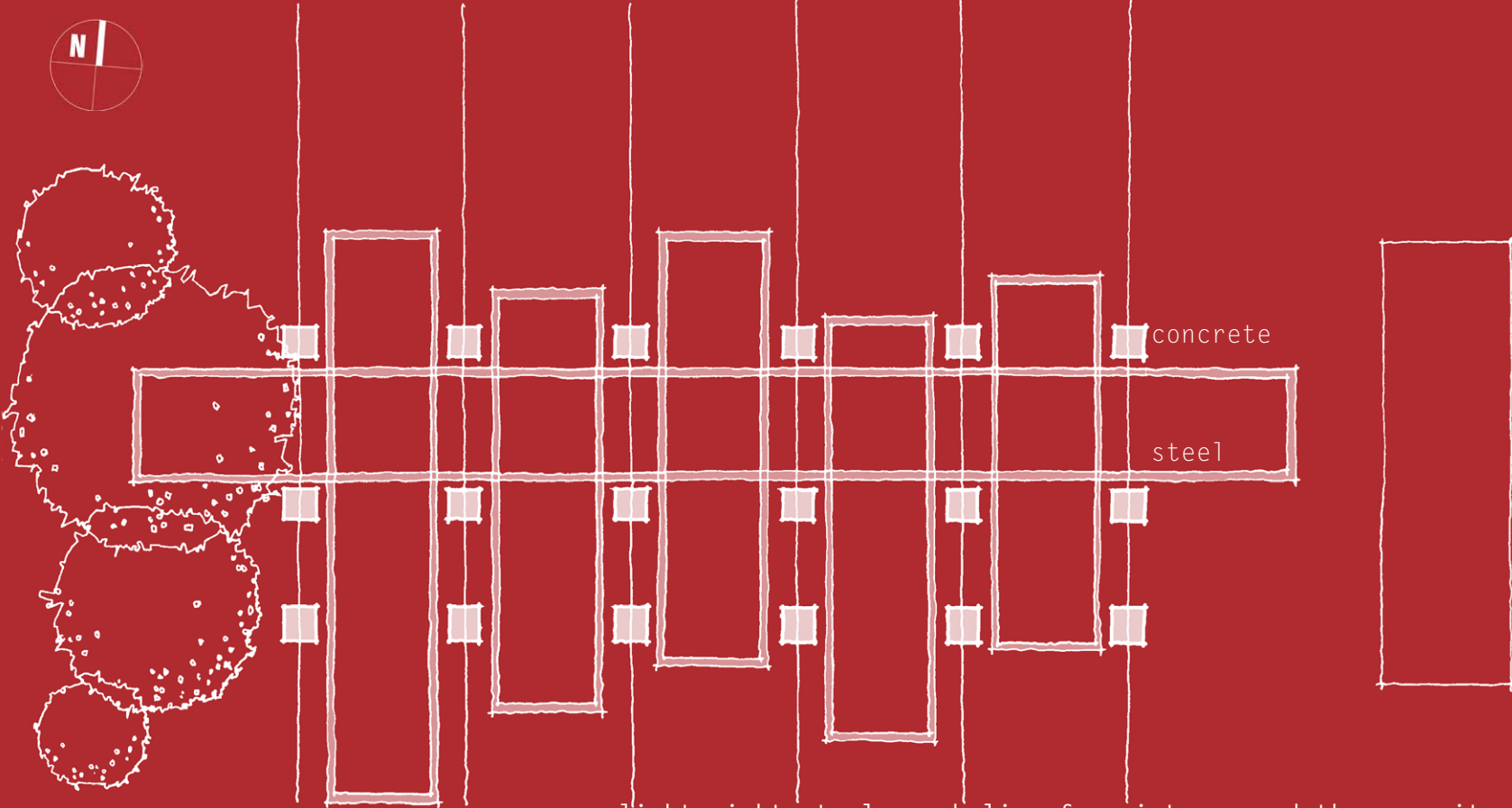


EXHIBITION SPACES

Fig. 74_



space is the field of human functions, man physically occupies the space, he communicates within the space. In creating a form we express the physical functions but we also give it a symbolic value. The symbolic value of the exhibition spaces is that of 'mediator' between nature and the man-made



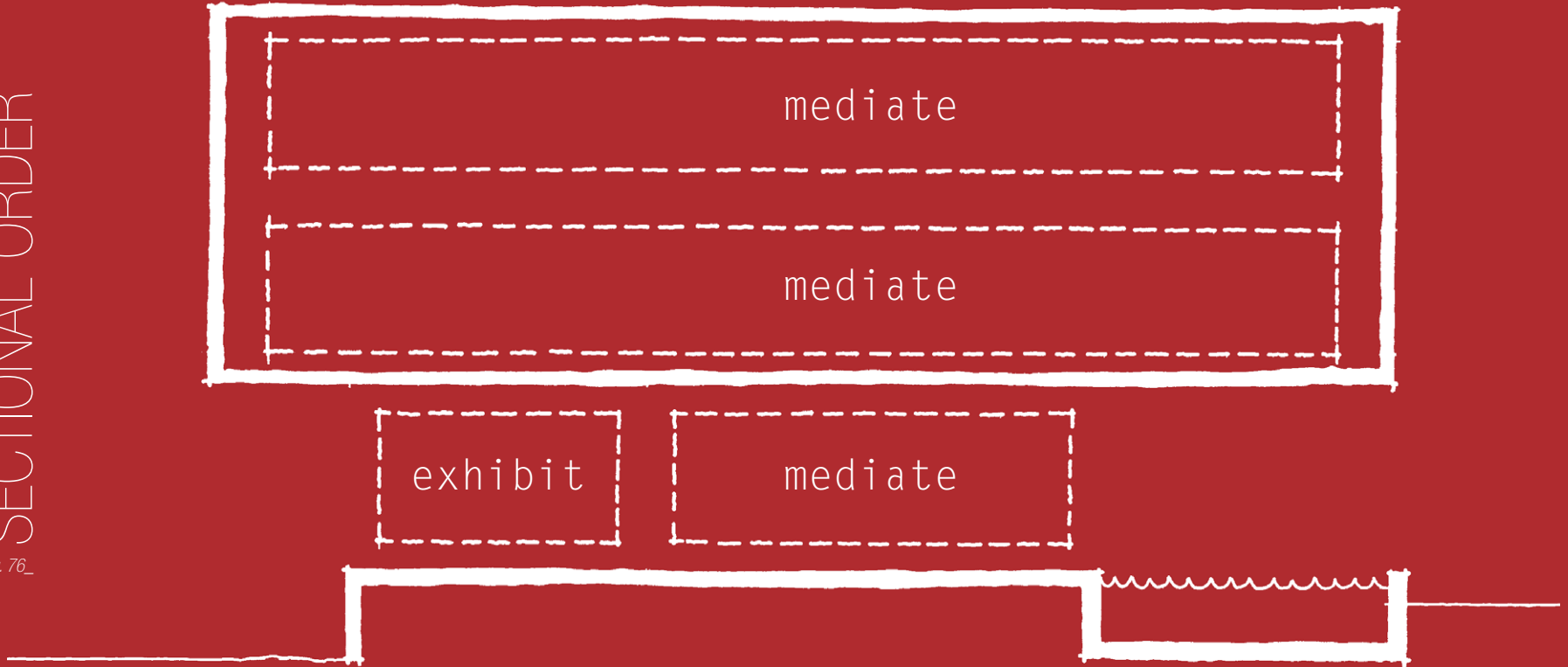
lightweight steel, symbolic of resistance and the pursuit of freedom, punches through the restrictive monolithic concrete frame which represents the oppressive grip of apartheid. The juxtaposition between light and heavy; solid and void; grounded and floating, and the omnipresent tension between stereotomic and tectonic facilitate a material representation of concept

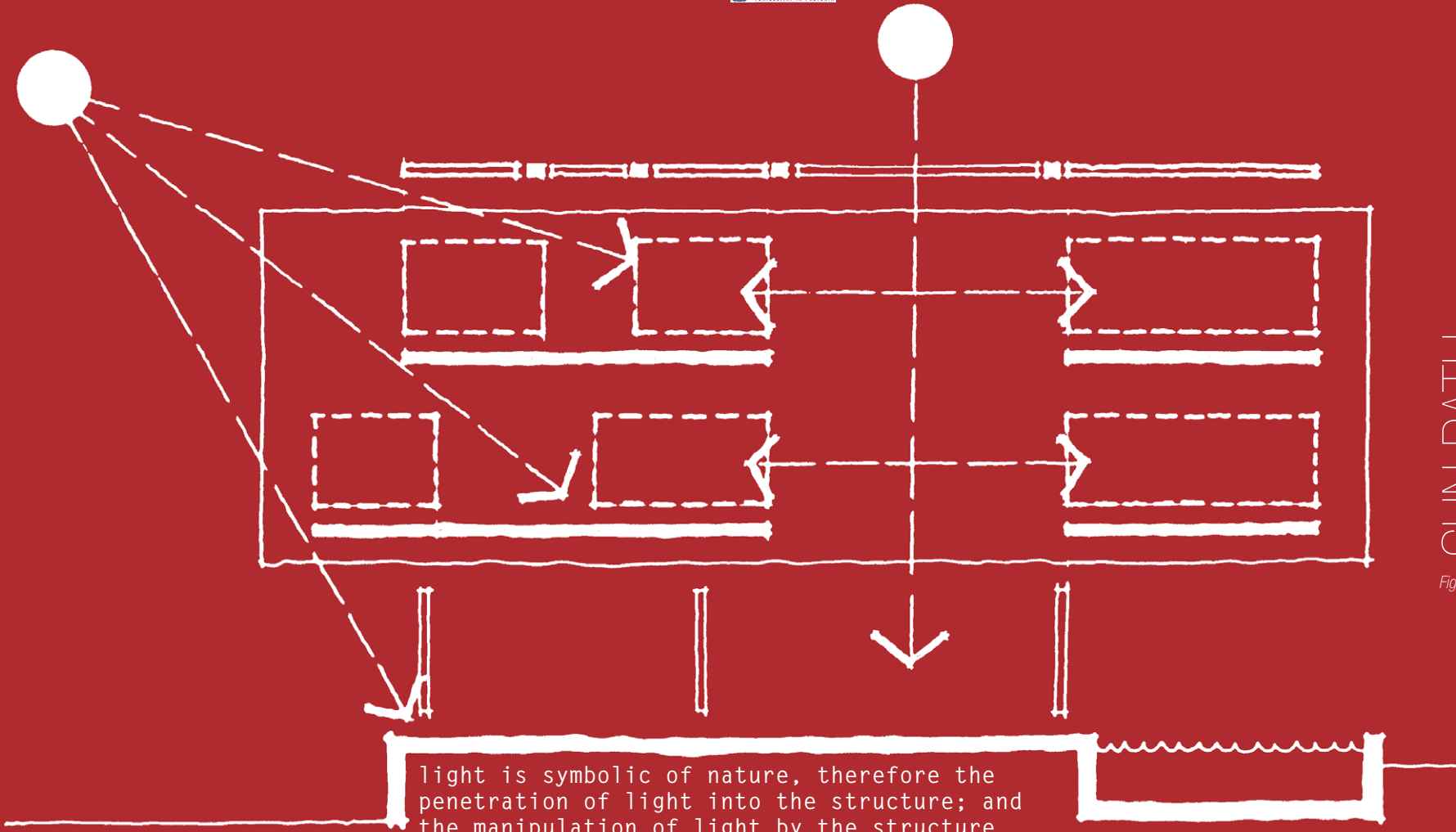
STRUCTURAL RELATIONSHIP

Fig. 75_

SECTIONAL ORDER

Fig. 76_





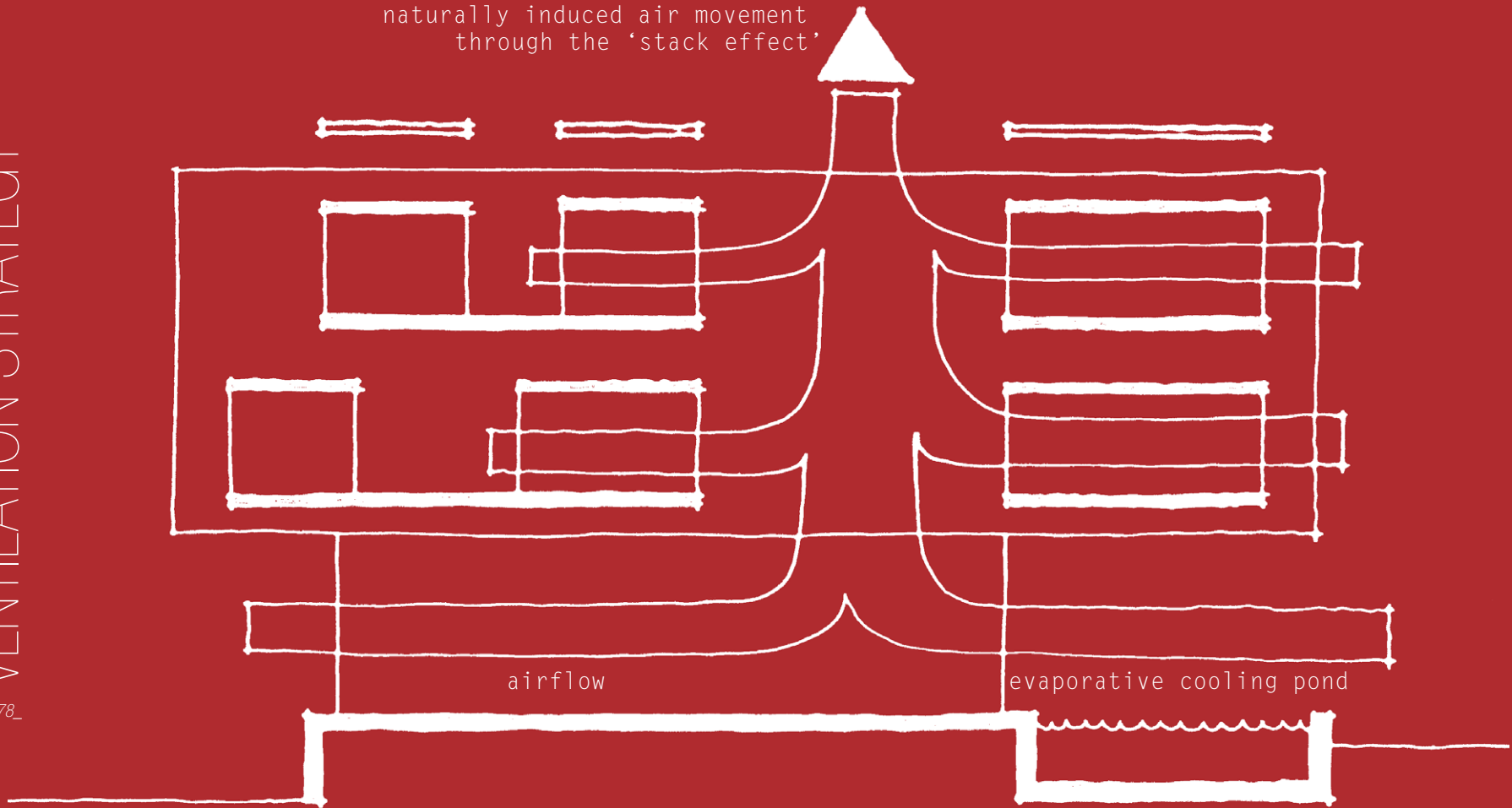
SUN PATH
Fig. 77.

light is symbolic of nature, therefore the penetration of light into the structure; and the manipulation of light by the structure plays a crucial role in tracking the path of the sun and animating the building

naturally induced air movement
through the 'stack effect'

VENTILATION STRATEGY

Fig. 78_



CHAPTER 06

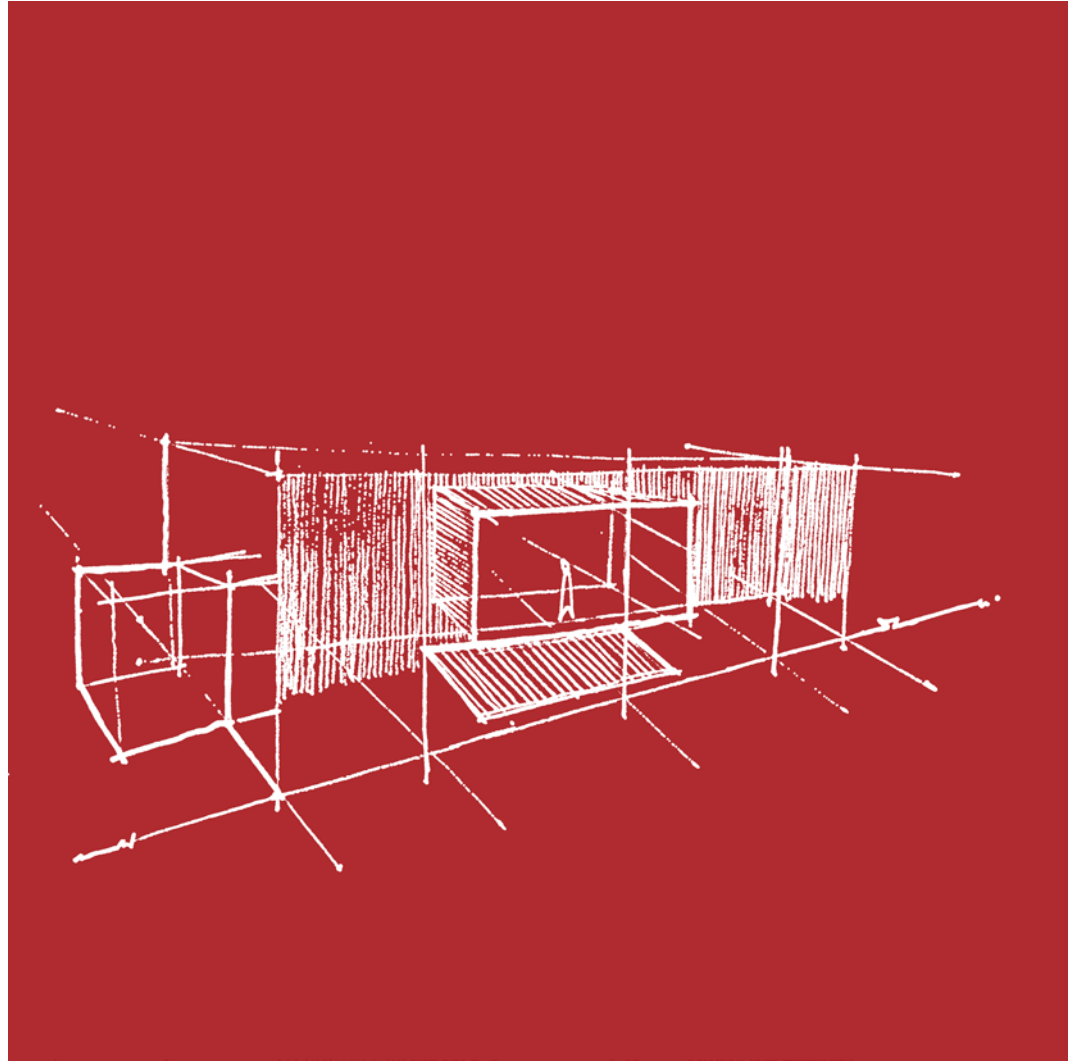
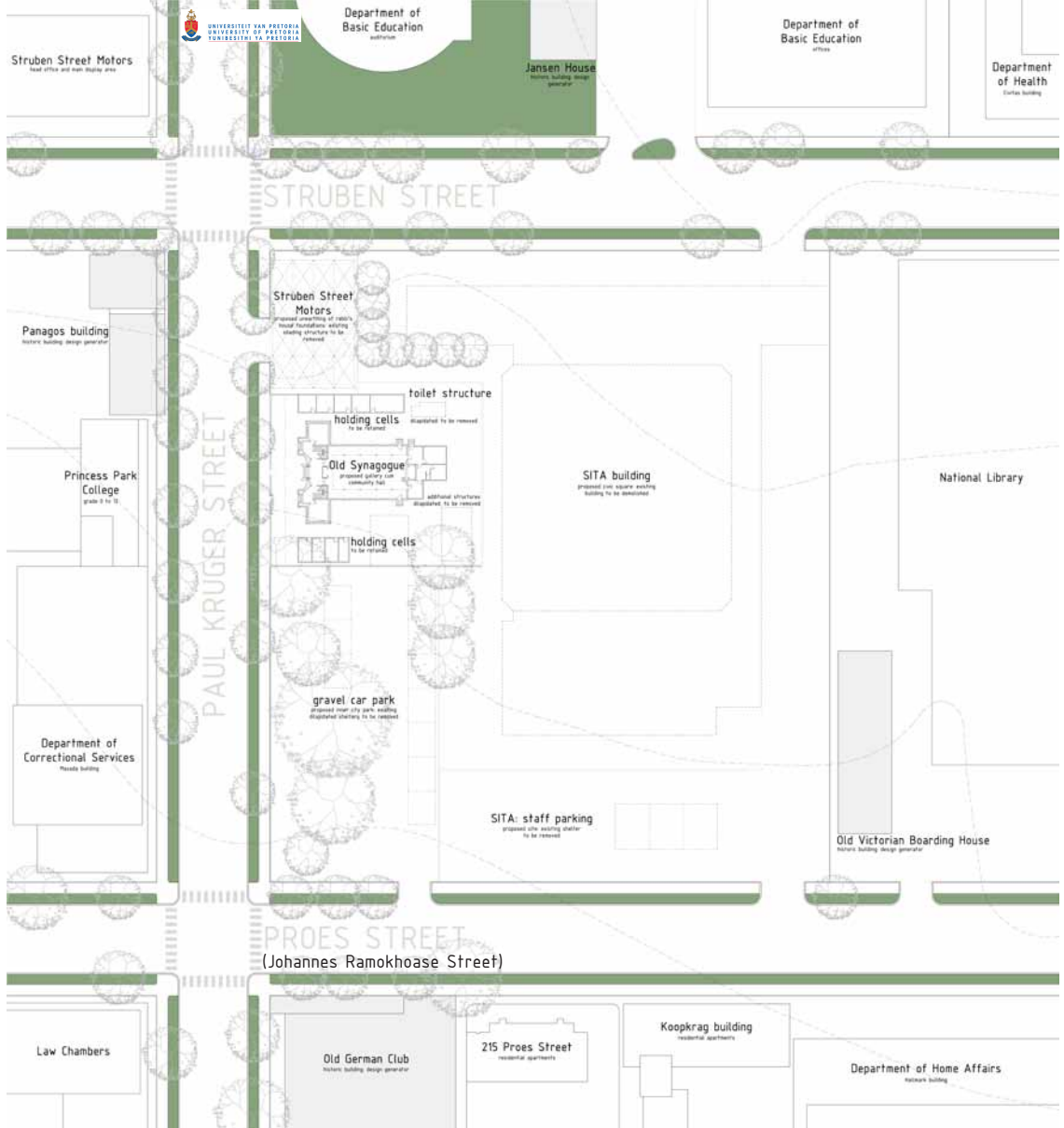


Fig. 79_ Concept sketch

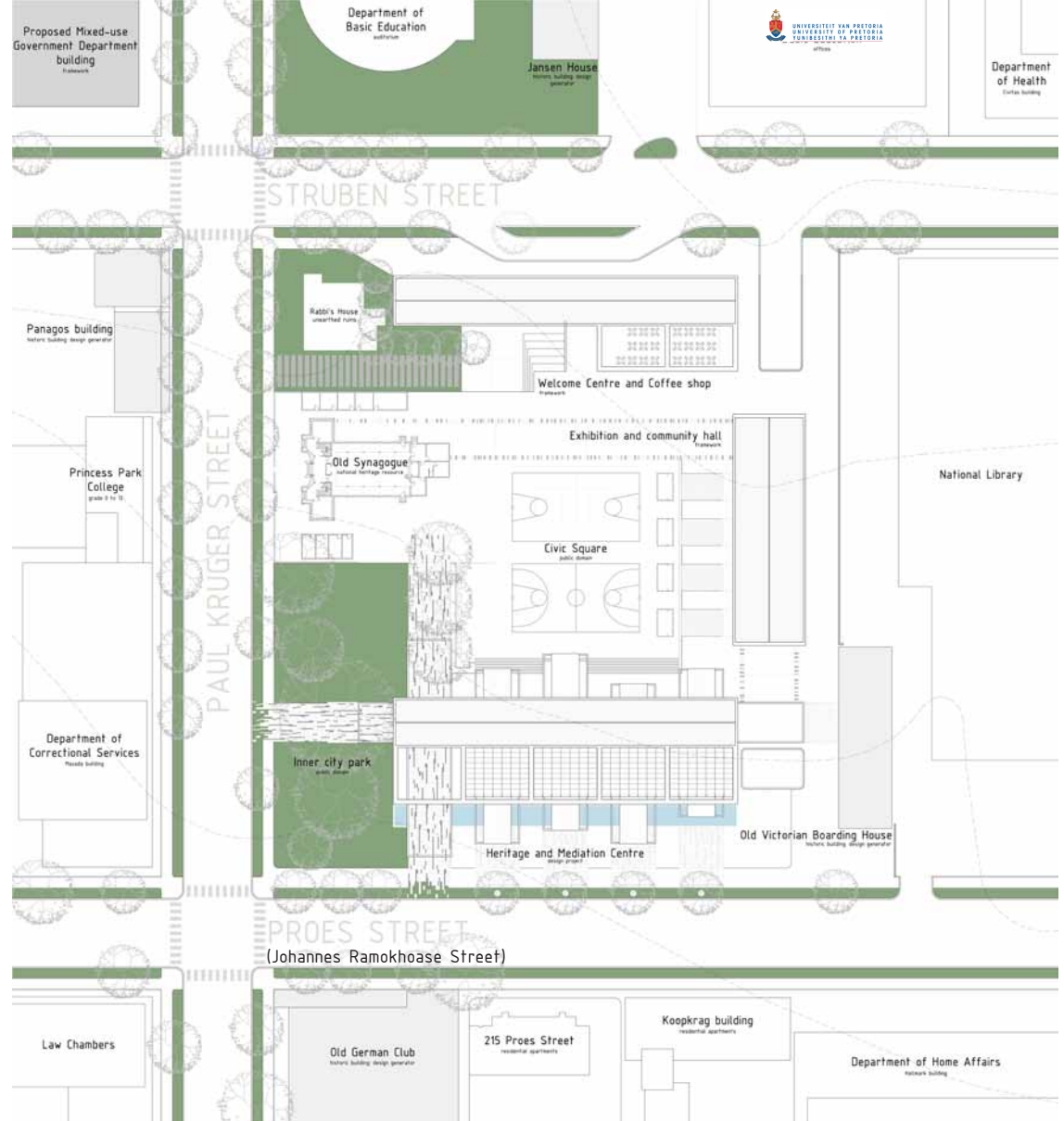


DESIGN



The existing site layout illustrates the land usage and current condition of the Old Synagogue's immediate context.

Fig. 80_
Existing site layout
n.t.s

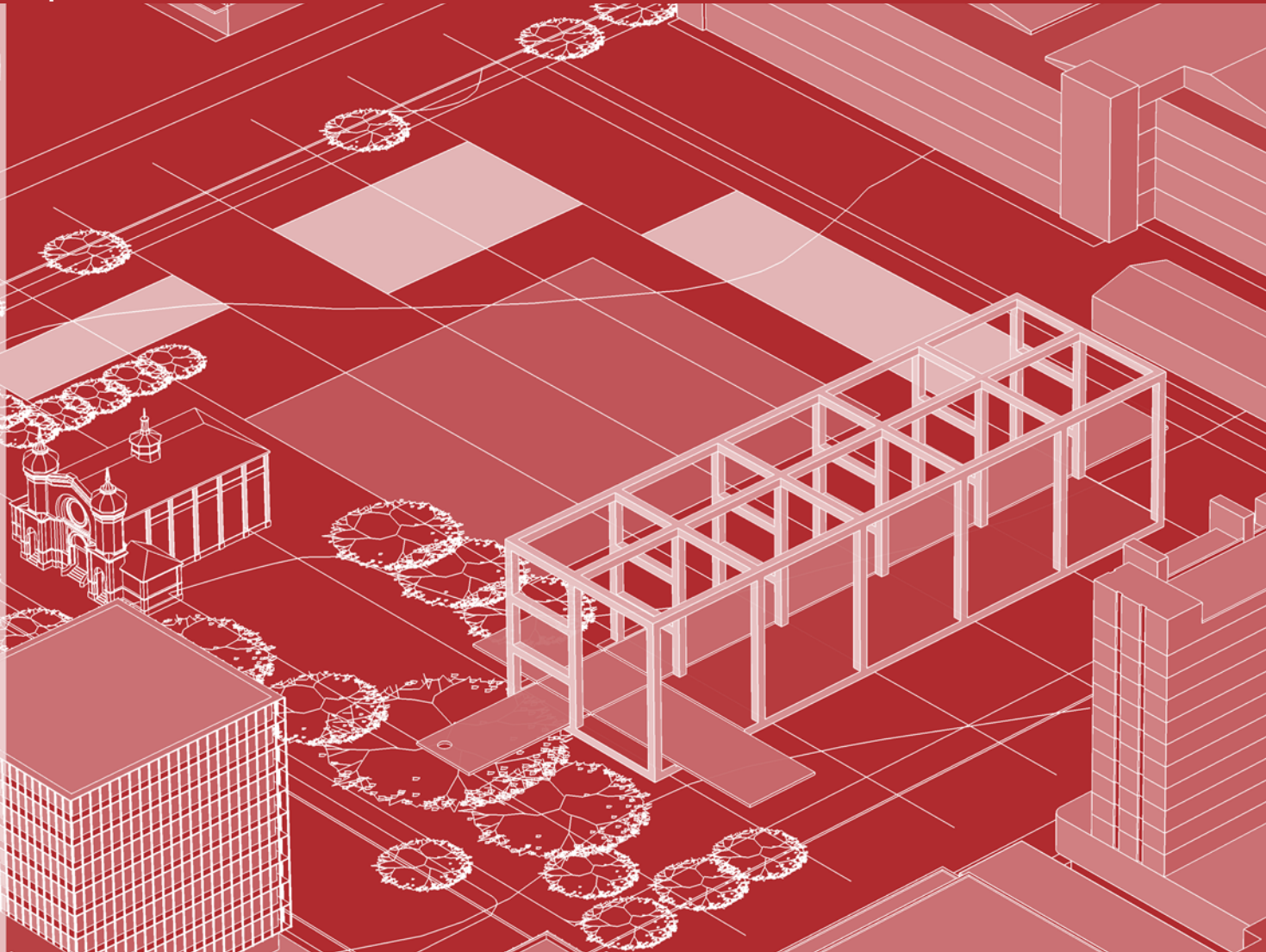


The proposed site layout illustrates the introduction of new buildings into the Old Synagogue's context and the creation of 'Synagogue Square'.

Fig. 81_ Proposed site layout n.t.s

6.1 Form development and spatial structure

Apart from the elaborate Byzantine street facade, the Old Synagogue is constructed with an economical and efficient structural solution. The stereotomic of the sacred hall space comprises of a column and beam system on a regular grid which supports the roof and facilitates enclosure. The proposed building pays homage to this simple and effective age old building tradition.



6.1.1

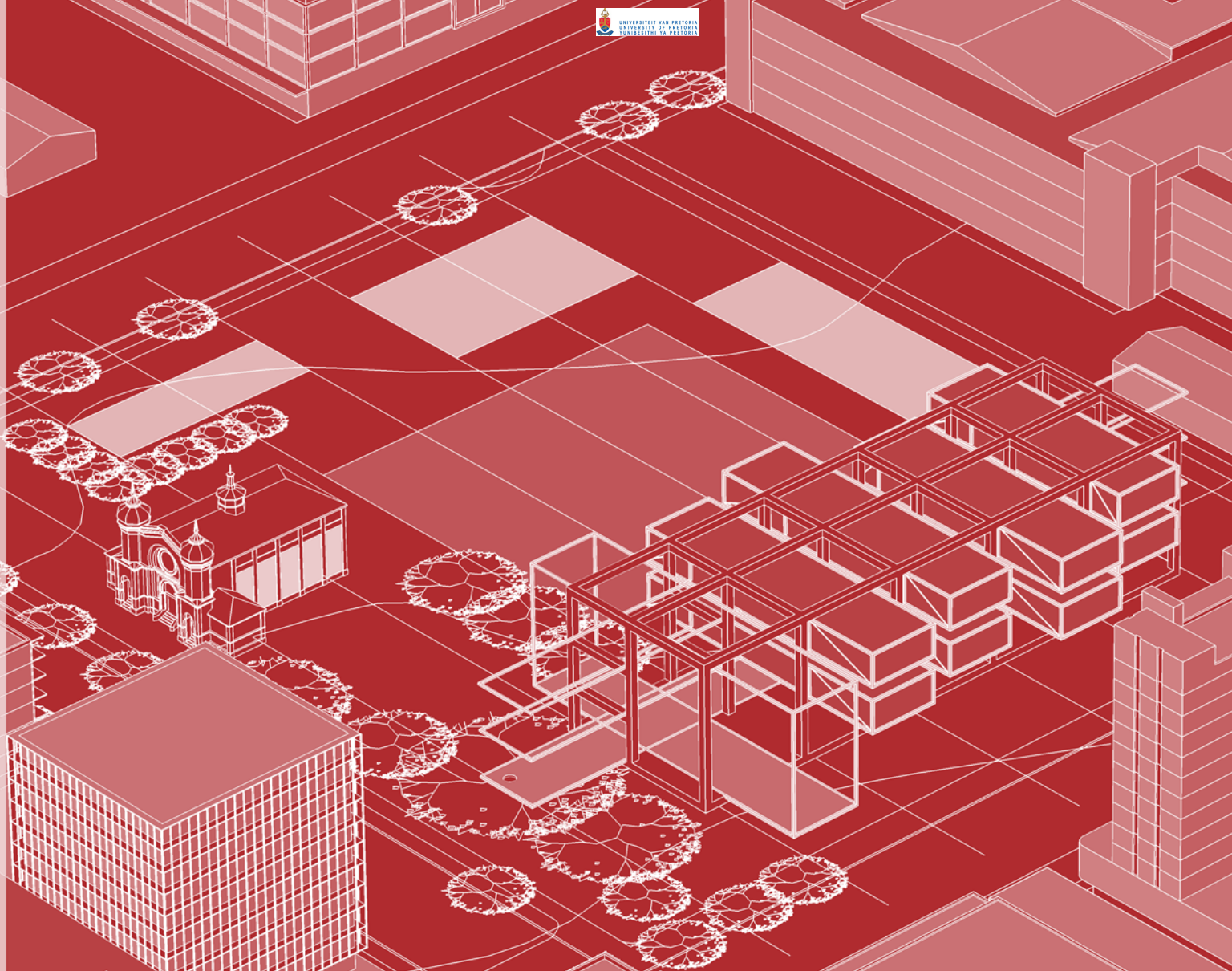
STEREOTOMIC

Fig. 82

6.1.2

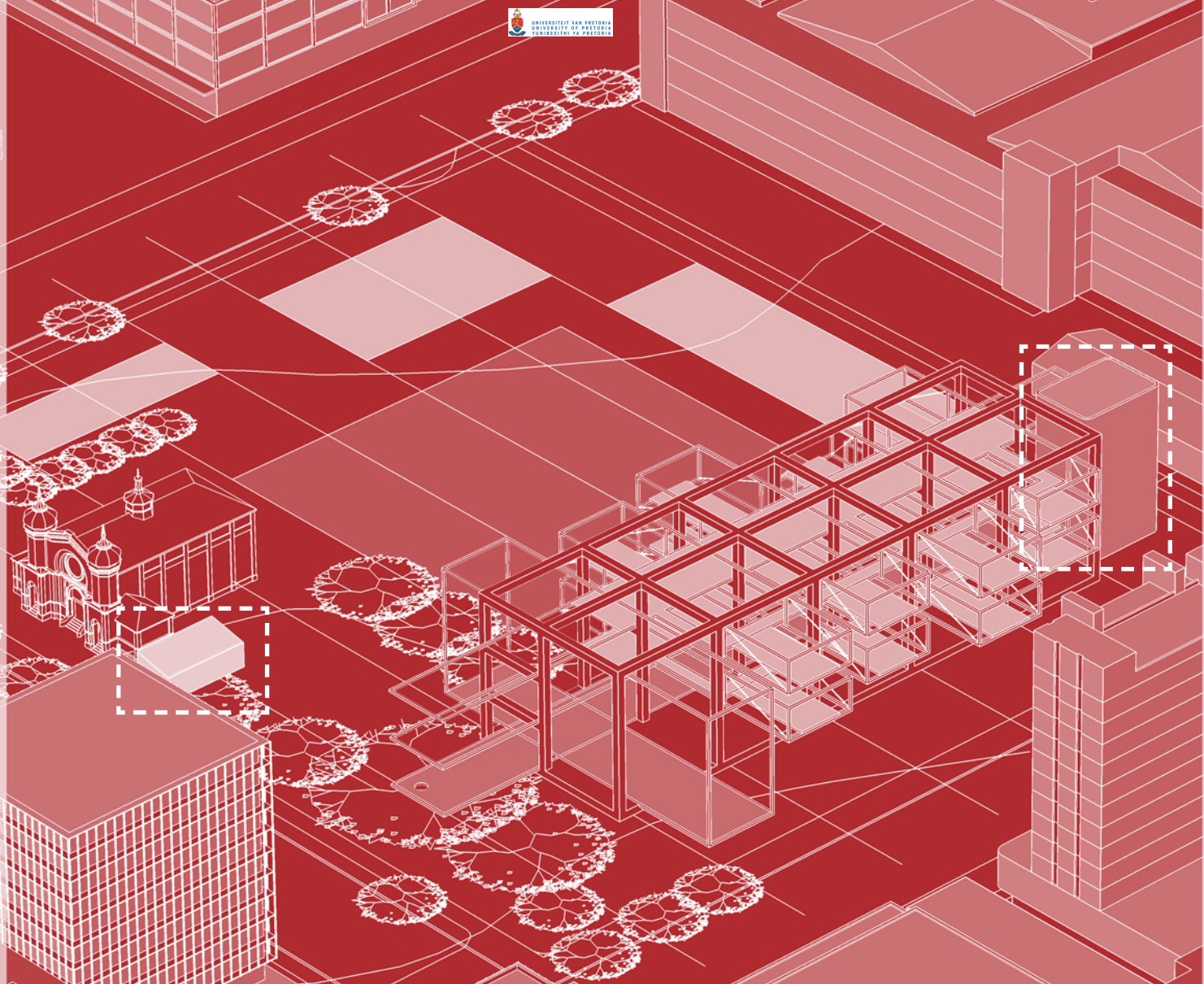
TECTONIC

Fig. 83_



The tectonic (*the dynamic*); specifically the infill of the load bearing structure is in contrast to the stereotomic (*the static*). The lightweight steel mediating structure, similar to the non-load bearing brick infill of the Old Synagogue allows for the animation of the building. All that is fluid flows through them, i.e: *water*, *air*, *light*, and *views*

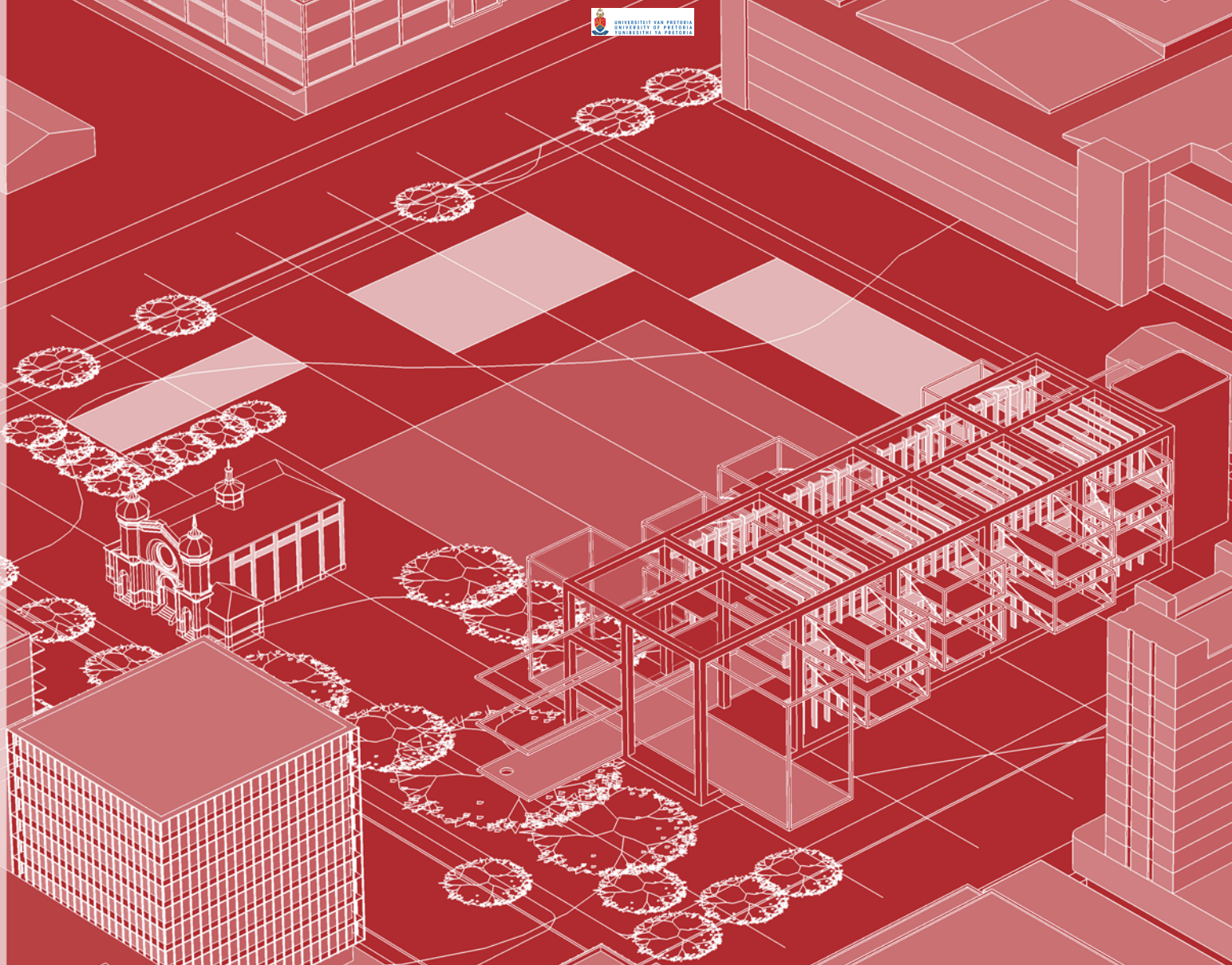
In order for the Old Synagogue to function as a Supreme Court additional infrastructure had to be built. These servant spaces were *peripheral yet integral*. This servant space consideration was carried through to the Heritage and Mediation Centre as a solution to not compromising the formal purity of the mass concrete stereotomic.



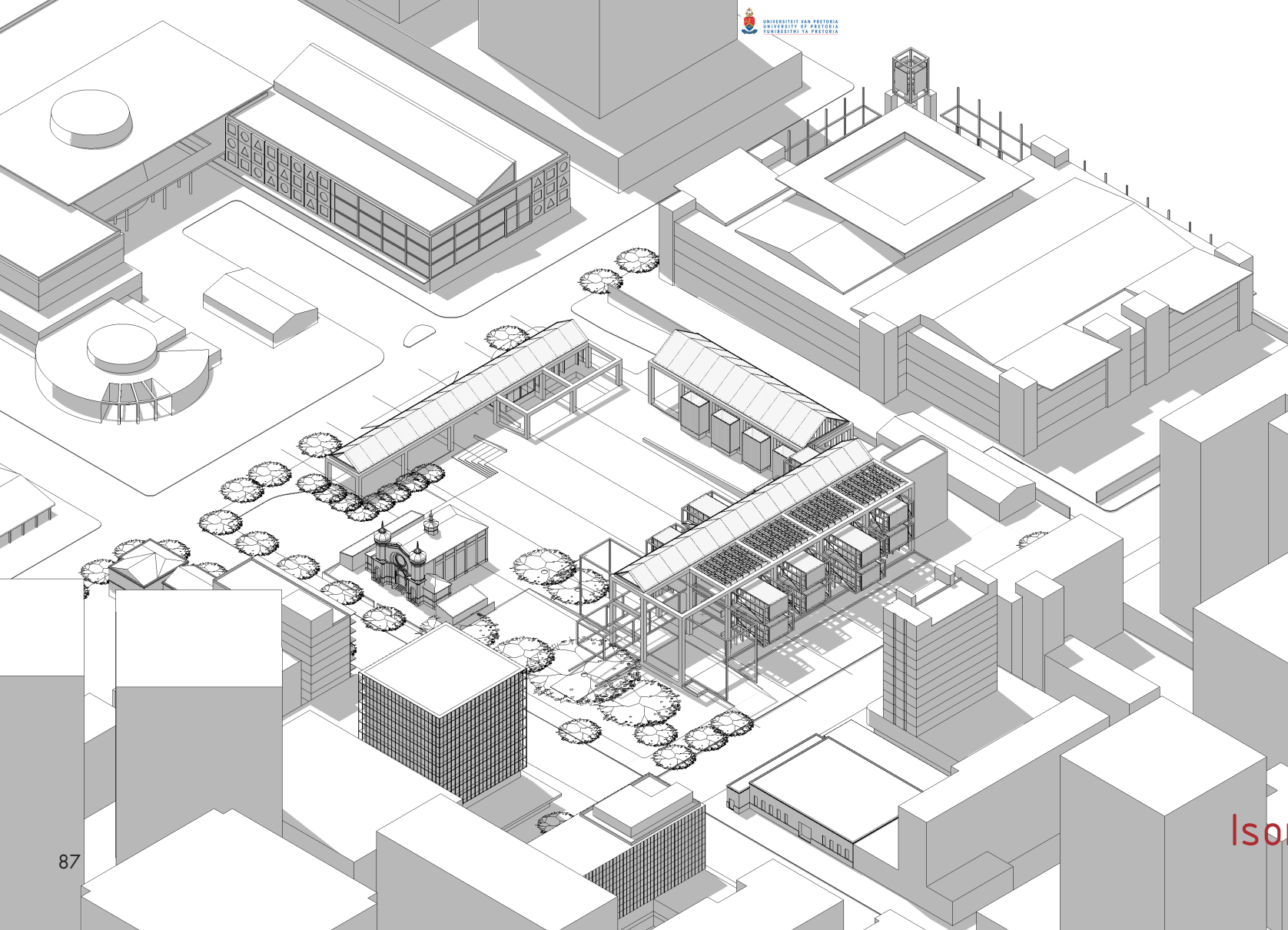
6.1.4

SUB-STRUCTURE

Fig. 85

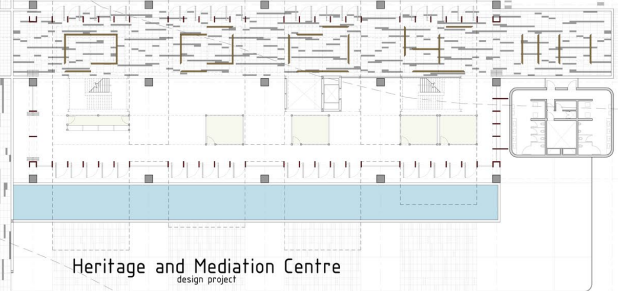
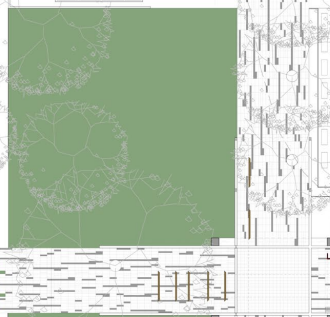
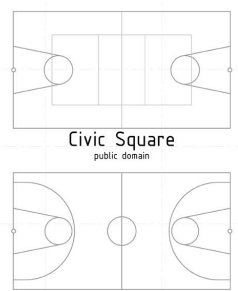
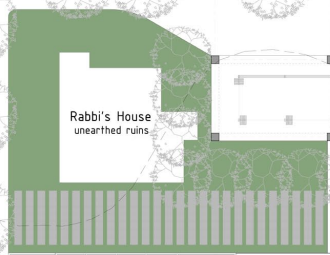


A sub-structure of permeable concrete skins polarise the space and establishes a hierarchy of privacy and a series of spatial thresholds. The first threshold is the *interspace*; as alluded to earlier, it is neither inside nor outside and can be simply described as a modern interpretation of the verandah typology. The second threshold of permeable concrete skins form the plane upon which inside can be distinctly separated from outside by means of doors, windows, screens and detachable/moveable lightweight structures.





PAUL KRUGER STREET



- 12
- 11
- 10
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- 7
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- 5
- 4
- 3
- 2
- 1

- A
- B
- C
- D
- E
- F
- G

Fig. 89
Site layout plan
n.t.s

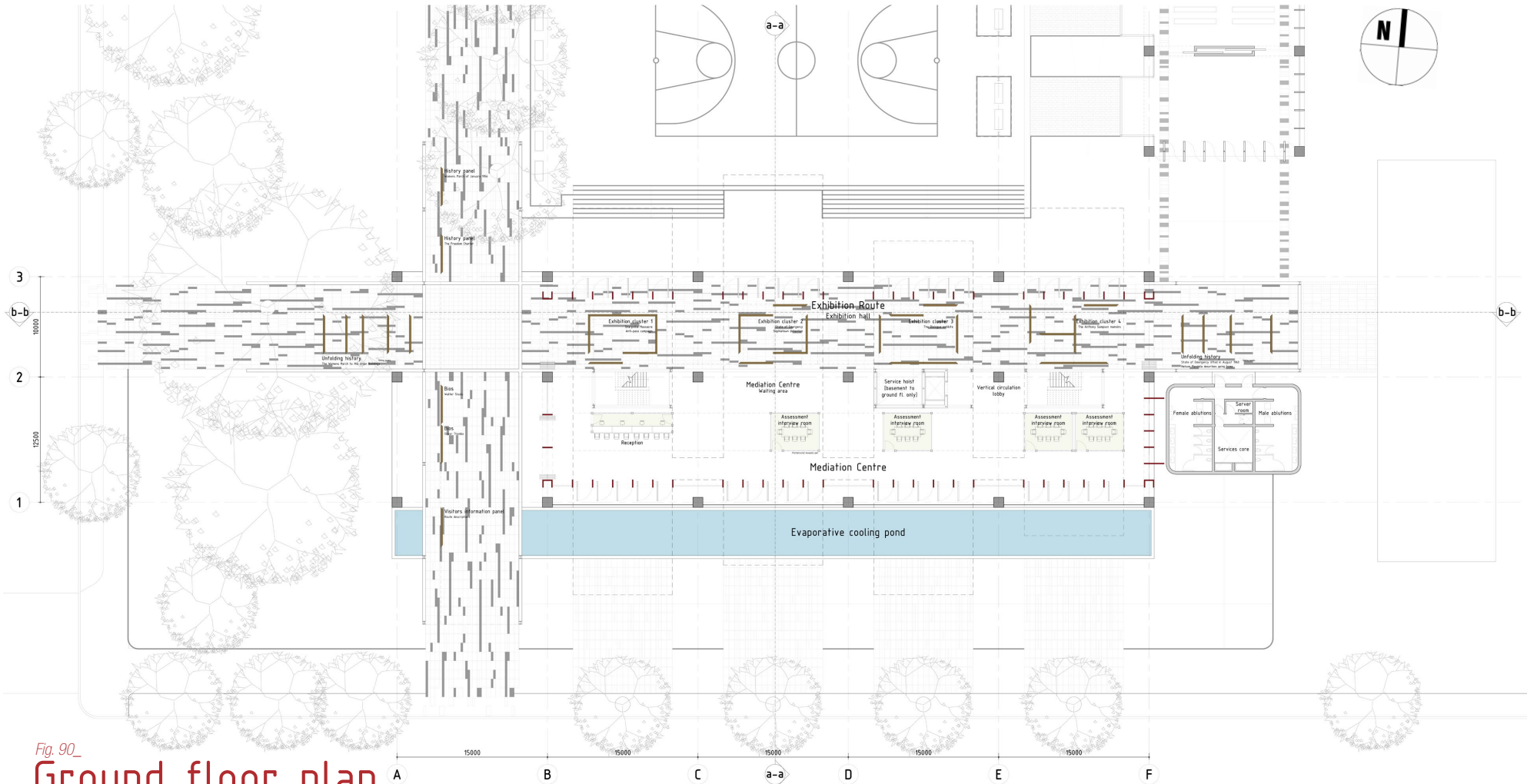
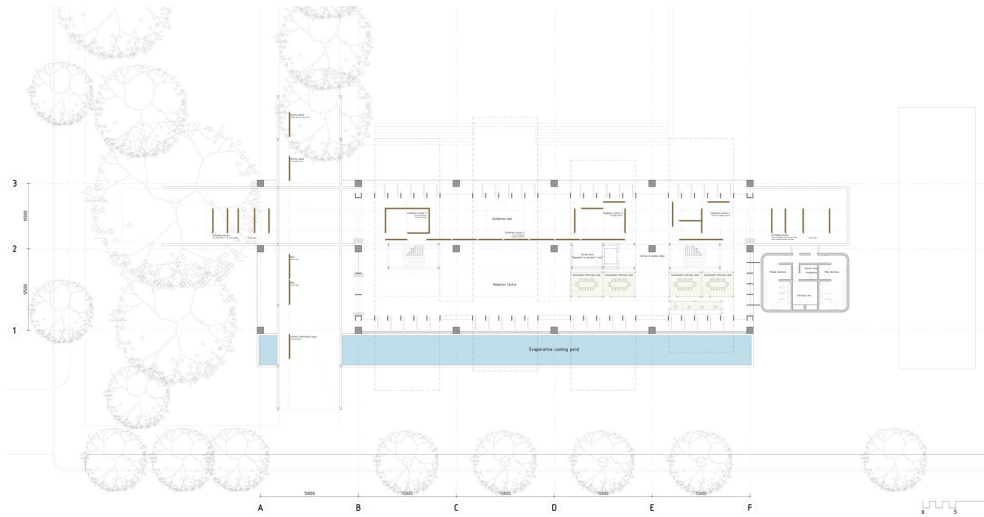


Fig. 90_
Ground floor plan
plan configuration_ A



Plan configuration 'B' illustrates how a division between the Mediation Centre and Exhibition Route can be achieved by positioning the moveable exhibits along the threshold of the two spaces, thus creating a distinct separation. Plan configuration 'C' liberates the entire ground floor, allowing the space to function as a single entity. Large mediation gatherings or exhibits could call for such a configuration. The strategic placement of the



assessment interview rooms restricts access to the upper levels; therefore security is not compromised by a high degree of public accessibility. This configuration could be desirable if either function requires an uninterrupted flow of movement or a greater level of privacy.

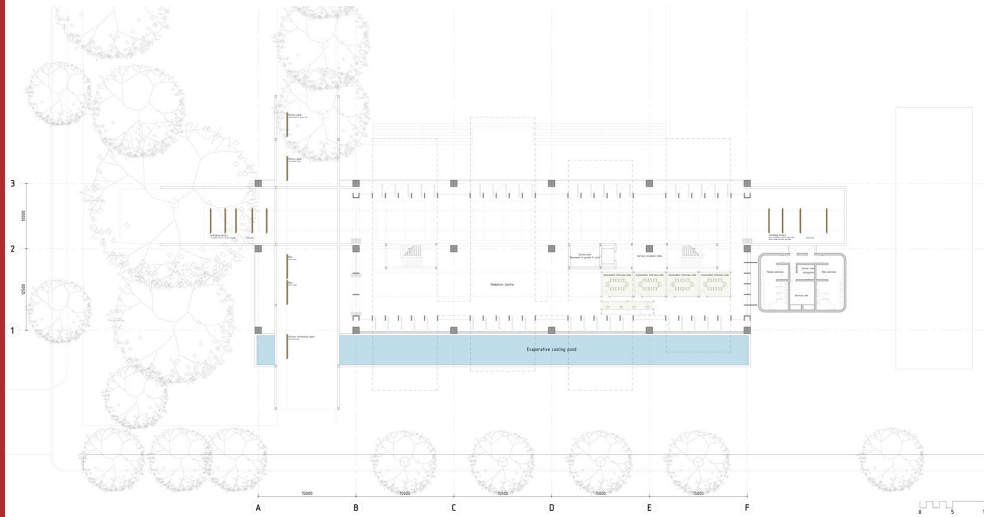


Fig. 91_
plan configuration__B

Fig. 92_
plan configuration__C

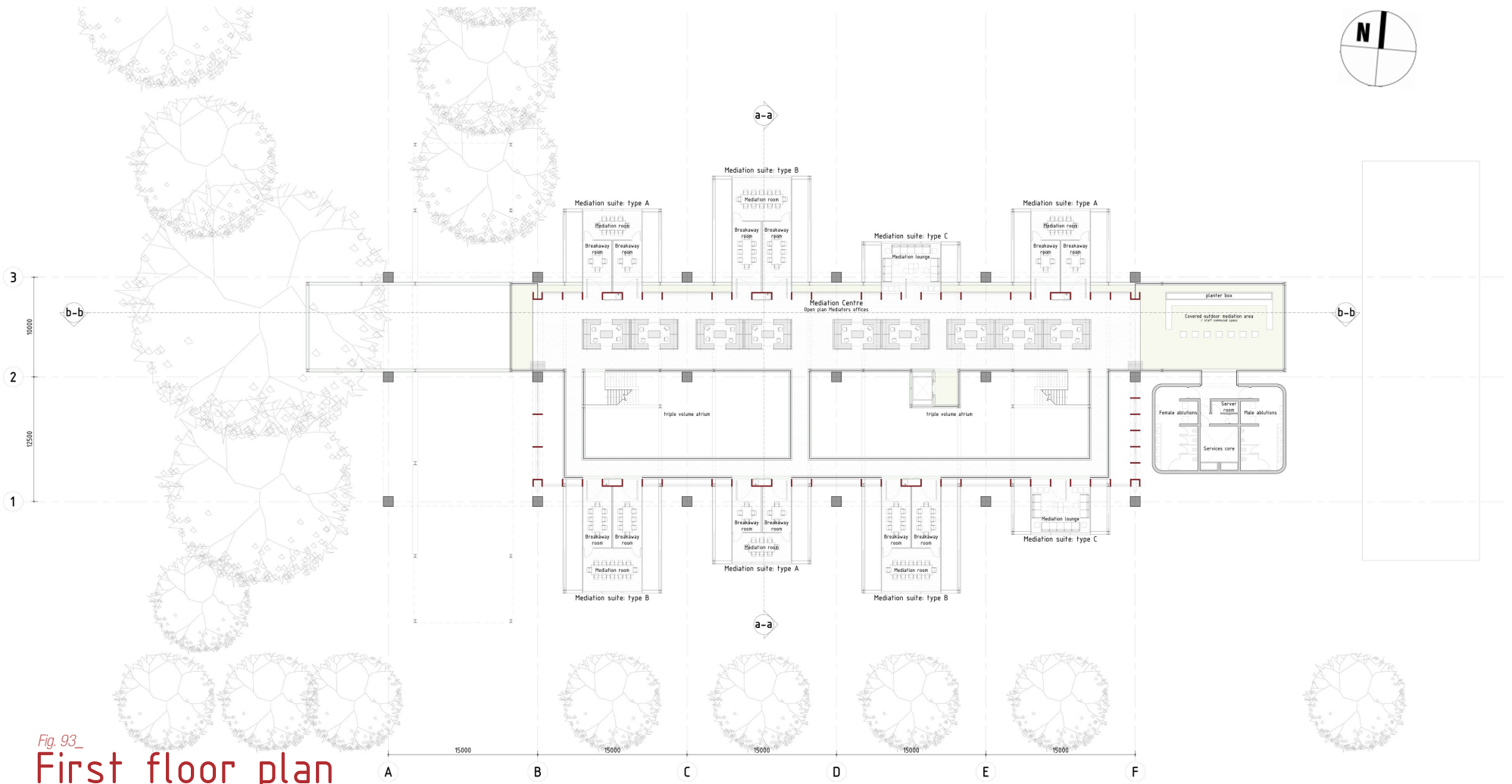


Fig. 93
First floor plan

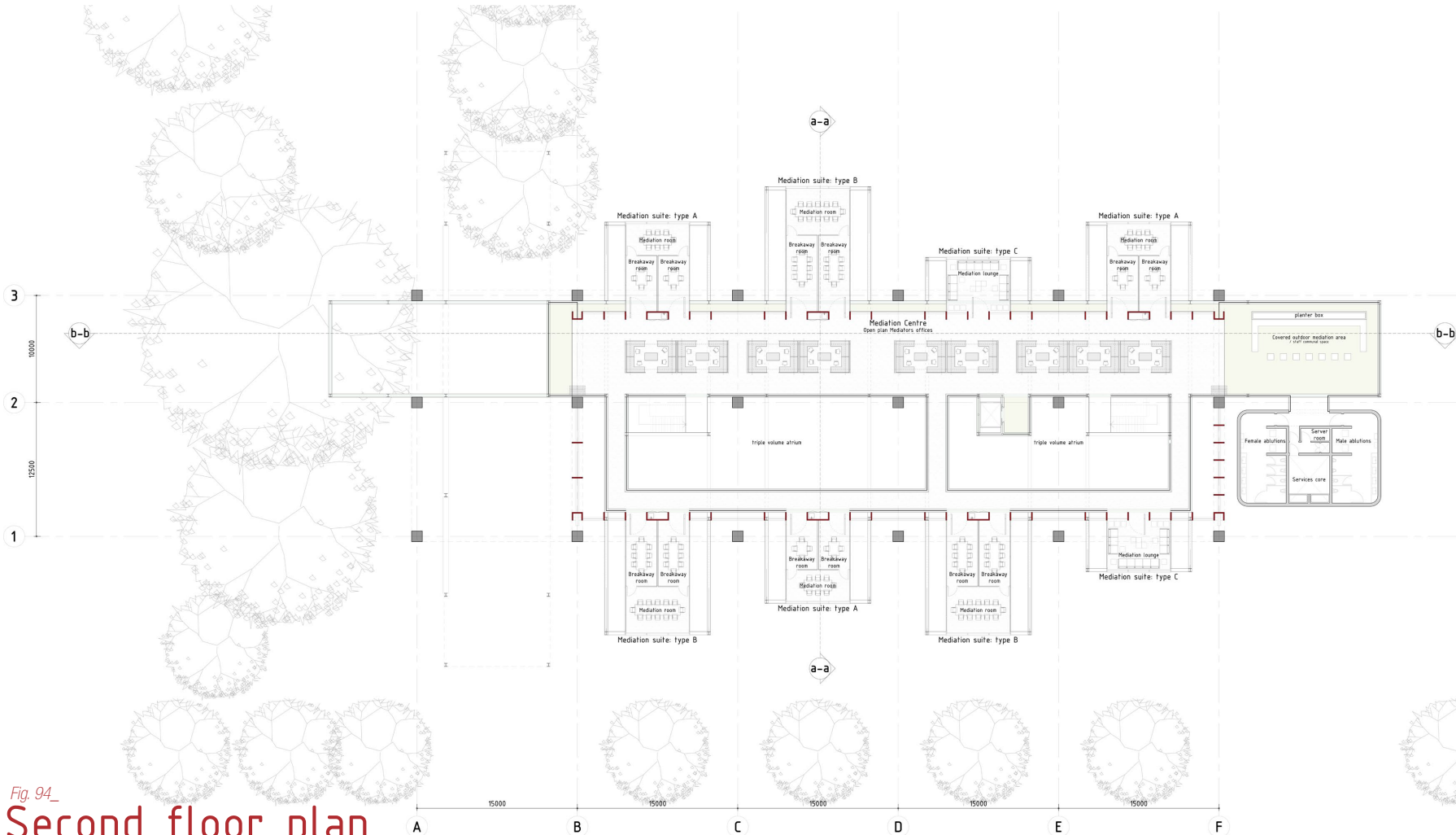


Fig. 94
Second floor plan

CHAPTER 07

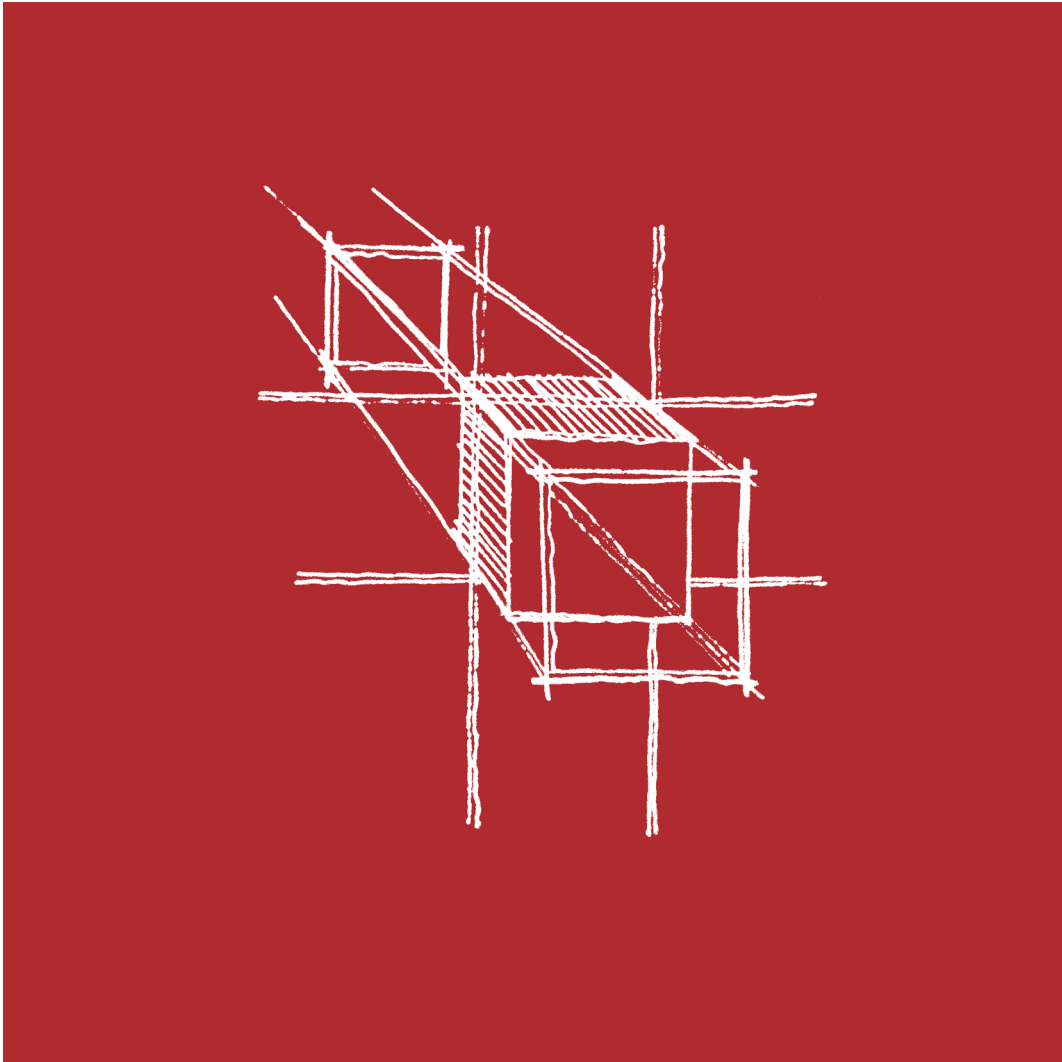


Fig. 95_ Structural concept



TECHNICAL

DEVELOPMENT

7.1 Materials and building composition_

ASSEMBLY A

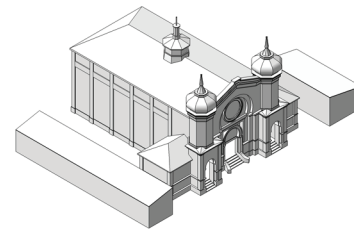
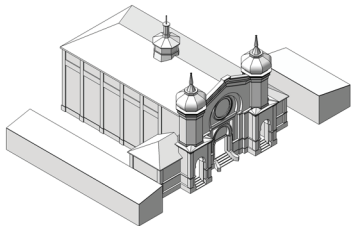
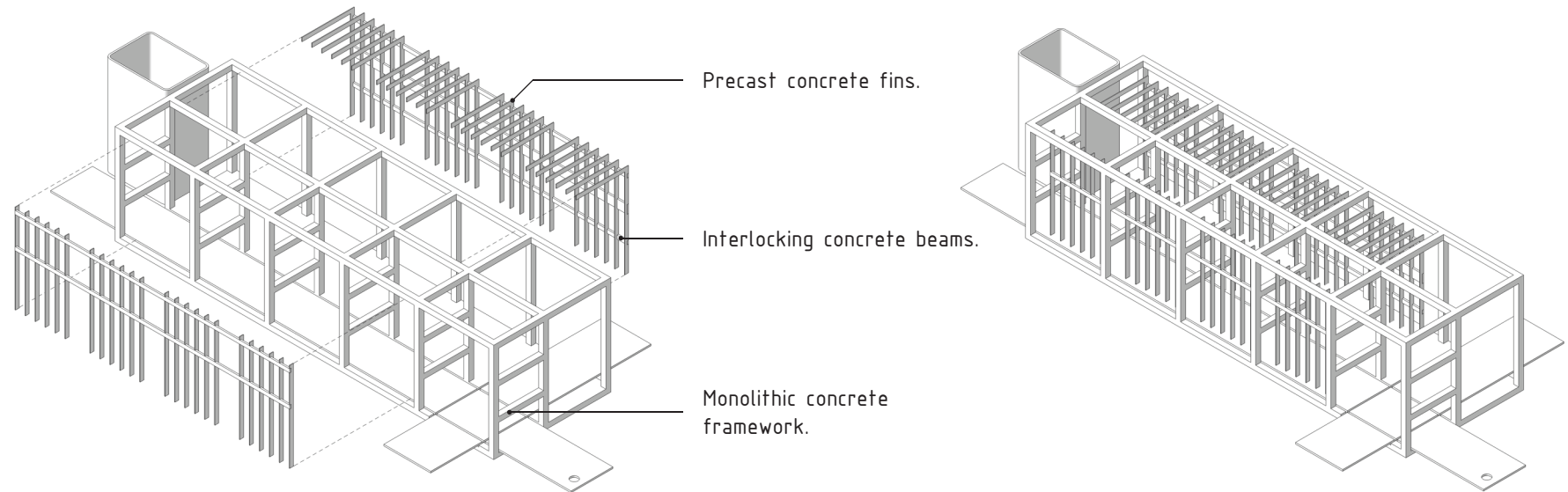


Fig. 96_ Exploded and assembled views of the concrete structure

CONCRETE STRUCTURE

7.1.1

The design concept is realised through the interweaving, overlapping, and layering of structural and infill components. The structural matrix consists of several parts: a primary concrete structure with a series of permeable concrete fin-like screens, a mild steel system of beams which accommodate floor plates and facilitate enclosure, a louvered roof, mild steel roof, and glazing systems. These components combine to form the superstructure of the building.

The large reinforced concrete columns and beams are cast on site as a monolithic component, whereas the thinner structural concrete fins and interlocking beams are pre-manufactured off site in quantity to ensure structural integrity. These components are then transported to site, assembled, and fitted to their parent concrete structure. After casting and assembly are complete, the concrete stereotomic forms the framework support structure for the lighter mild steel components to follow.



Fig. 97_ Materiality

ASSEMBLY B

A vierendeel girder truss and cantilevered howe truss are combined to form a moment frame truss structure. The structure is constructed using I Profile Extrusions (I.P.E's) to form a fabricated lightweight mild steel beam when the 2 parallel truss structures are joined. The joined structure is commonly known as two-way vierendeel truss.

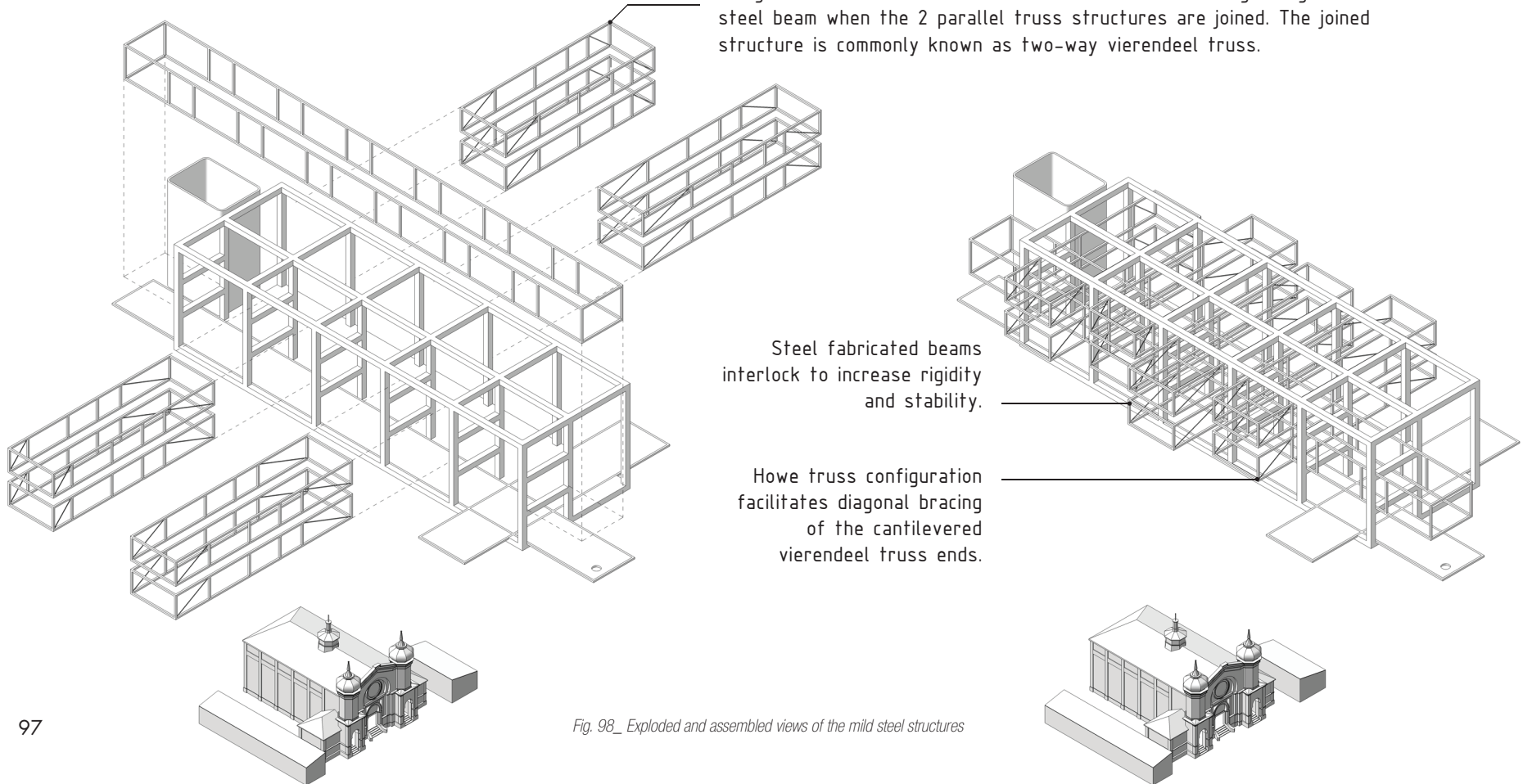


Fig. 98_ Exploded and assembled views of the mild steel structures

The purpose of the lightweight mild steel structure is to manifest the concept through materiality and construction. The proposed protruding steel structures represents resistant in the face of oppression - characterised by the rigidity of the monolithic concrete. Lights, services, and piping are fixed to the fine grain steel structure, enabling ease of access and adaptability of these systems. Steel components and fabrications are factory welded and galvanised before on site assembly for quality control and corrosion protection.

In addition to providing flexibility, the two-way vierendeel truss creates a complete, self contained structural system independent of the building enclosure and interior walls. All gravity and shear forces are resisted by the moment-frame truss structure and no shear walls are required (Living Steel, 2012). This attribute provides flexibility in the window placement, positioning and later modification of the mediation suites.

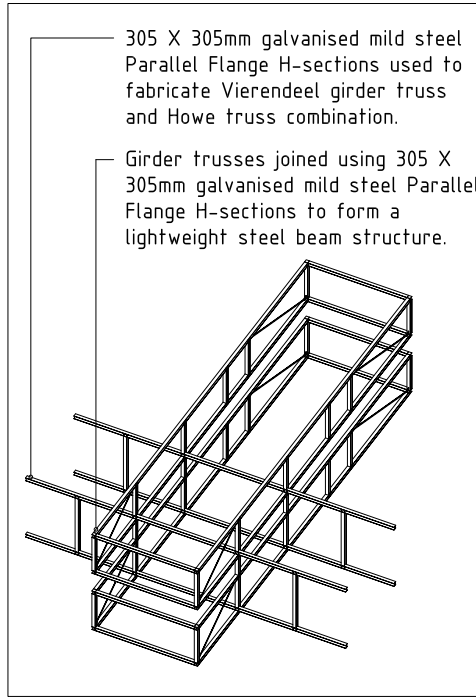


Fig. 99_Typical steel structure assembly

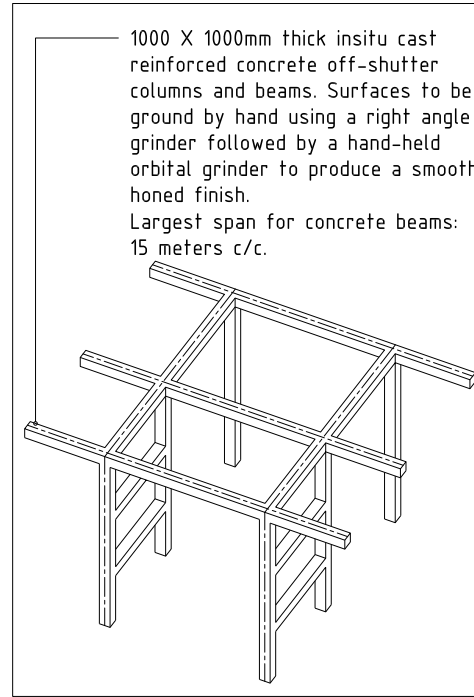


Fig. 100_Concrete structure

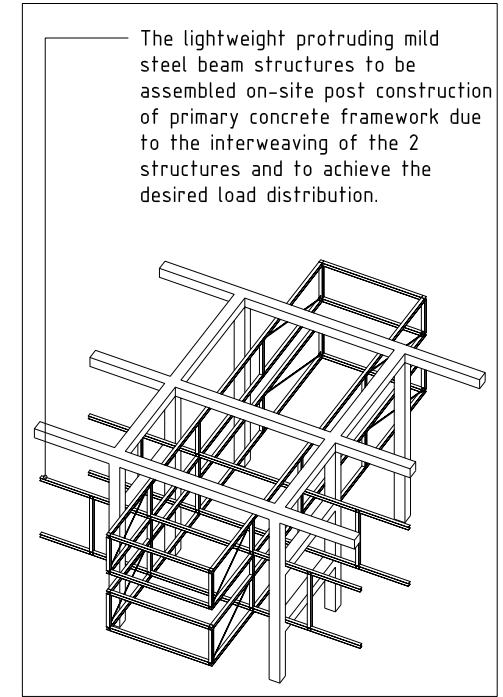
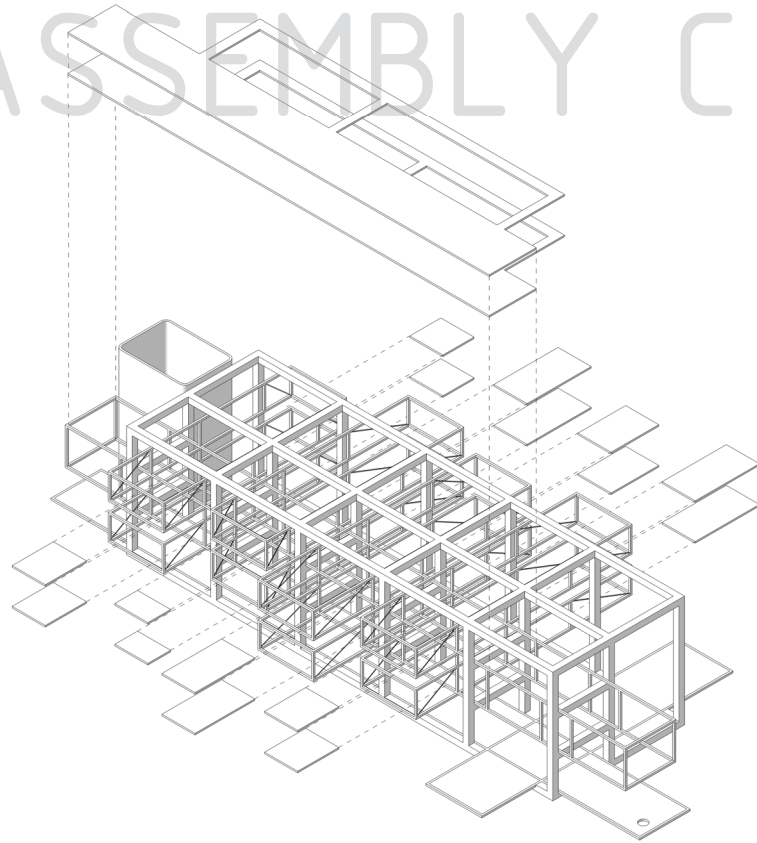


Fig. 101_Interwoven structures

ASSEMBLY C



The Old Synagogue, being over a century old, is the foremost symbol of permanence within its context. Therefore it is essential to recognise this historic milestone and respond in a manner which respects its significance. Thus the proposed buildings material composition and construction technology is one of adaptability, lightness, ease of assembly, and conversely, disassembly. The purpose of which is to accentuate the juxtaposition between, old and new, permanence and temporality, and heavy and light, in an effort to re-appropriate and activate the Old Synagogue's historic context.

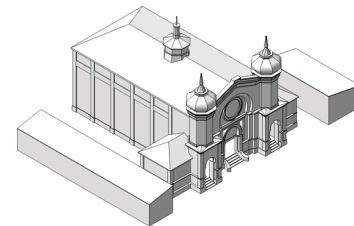
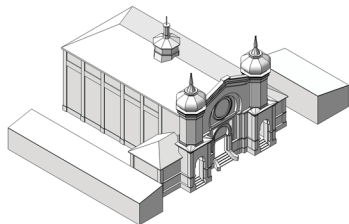
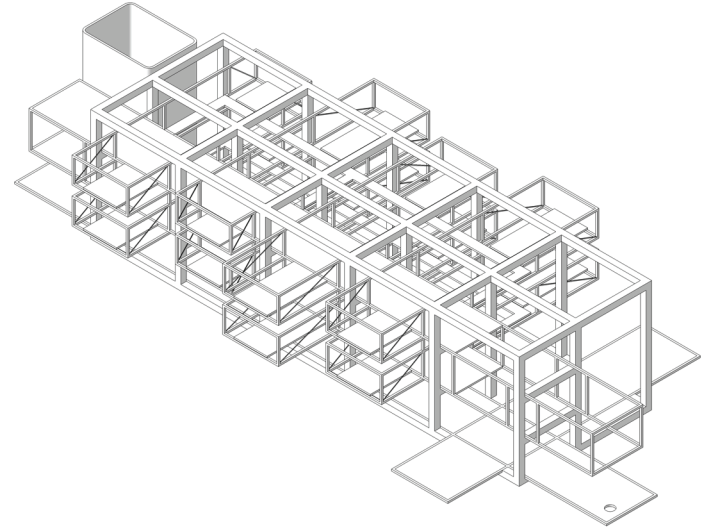


Fig. 102_ Exploded and assembled views of hollow core floor assembly

In the event of the centre's disassembly, only the concrete frame and service tower will remain. The skeleton can therefore be re-appropriated and in-filled in a manner which suits future interventions. Bearing in mind these design considerations, and attempting to communicate 'temporality' through the decision making process, a precast hollow core flooring typology was selected for the construction of floors. The inherent qualities of this technology are lightweight construction, fine grain servicing (through the hollow cores), and re-appropriation in the event of the building being disassembled (figure 103).

200mm deep precast prestressed hollow core concrete floor slabs in 1200mm widths supported between mild steel H-sections.

30mm thick levelling screed to be laid over floor slabs to ensure a level finishing surface. 4mm thick pine plywood strips to be slotted between floor slab sections protruding outward by 30mm to create a joint between the screed surface at slab section intervals. The screed joint ensures the floor sections remain independent of each other and enables effective disassembly after the floor finish is striped away.

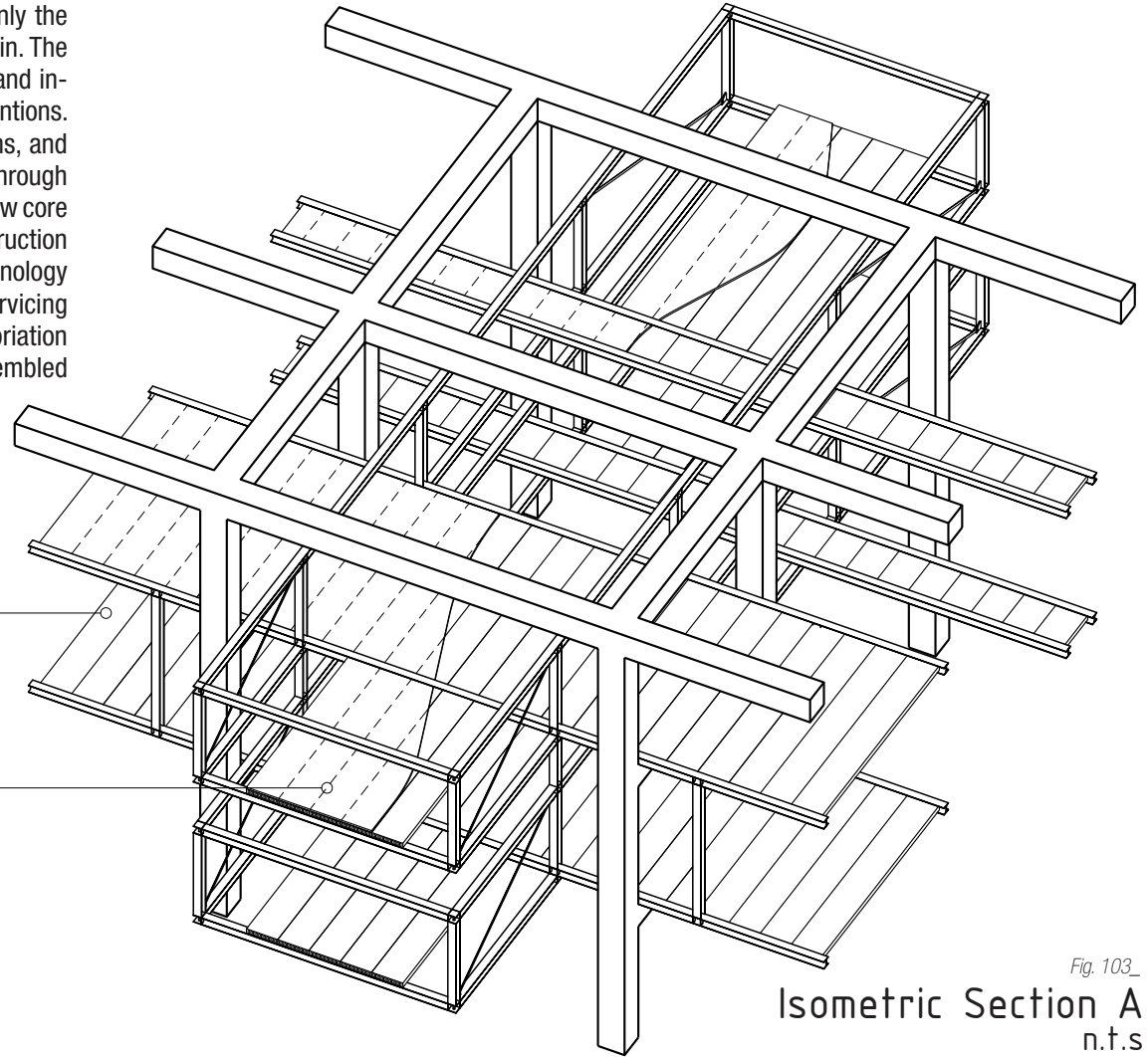


Fig. 103_
Isometric Section A
n.t.s

ASSEMBLY D

RHEINZINK facade cladding panels wrap the protruding ends of the steel structure, thus enclosing the space and creating Mediation suites.

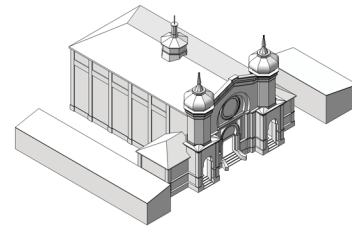
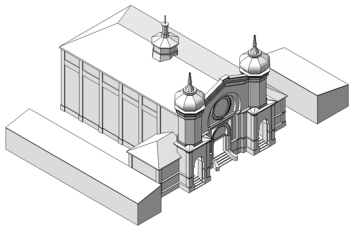
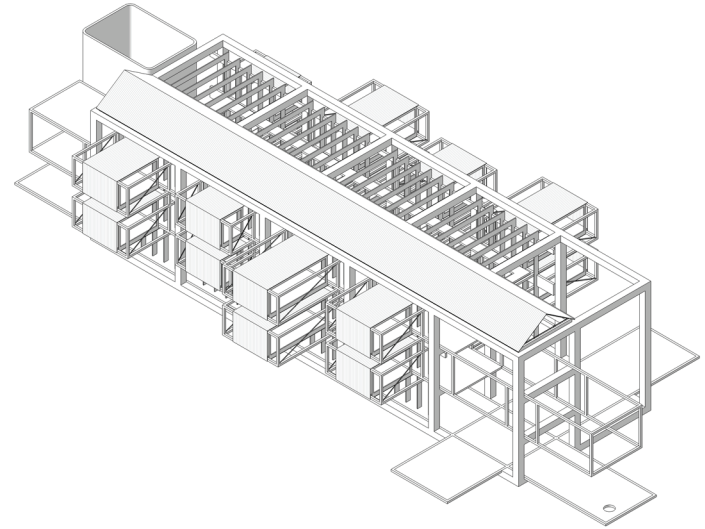
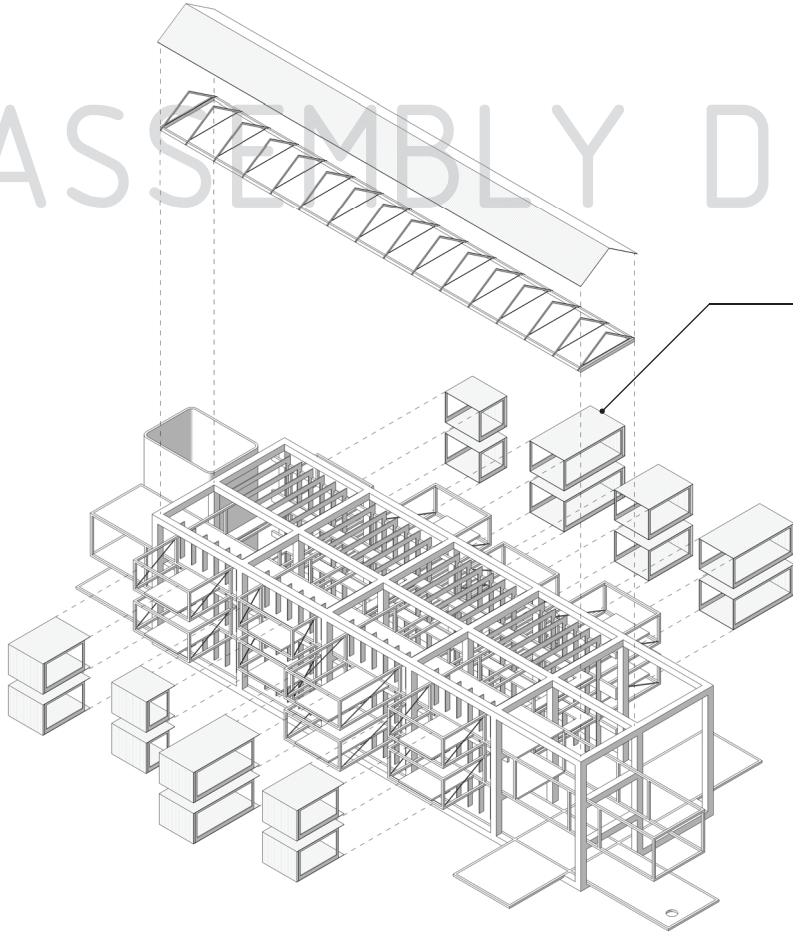


Fig. 104_ Exploded and assembled views of the buildings cladding components

15mm thick strand woven bamboo strip flooring glued directly onto leveled concrete screed using a low volatile organic compound adhesive.

Prepainted graphite-grey 0.8mm thick 'Brownbuilt' deep profile concealed fix roof sheeting fixed to prefabricated mild steel purlins.

25mm thick Isoboard insulation sandwiched between roof sheeting and purlins.

125 X 75mm thick mild steel rectangular hollow section purlins at 1400mm centres made to slot into purpose fabricated mild steel truss with a cross lap joint.

Purpose made prefabricated mild steel roof trusses fixed to slotted ring-beam with M16 expansion bolts. Mild steel washers at all connections.

12mm seam width vertically orientated RHEINZINK - Angled Standing Seam concealed fix facade cladding mounted onto a 9mm thick pine plywood sub-structure. Facade cladding to be finished in RHEINZINK - 'preweathered graphite-grey'.

9mm thick pine plywood sub-structure fixed to light gauge steel skeleton frame using 5.5mm countersunk head selftapping screws.

100mm thick Isover 'Cavitybatt' glasswool thermal and acoustic self-supporting insulation installed within steel frame cavity.

1200 x 100 x 15mm thick strand woven bamboo wall paneling planks fixed to 9mm thick pine plywood sub-structure, laid with staggered half lap joints. 4mm countersunk head woodscrews to be concealed with the exposed end of the half lap joint.

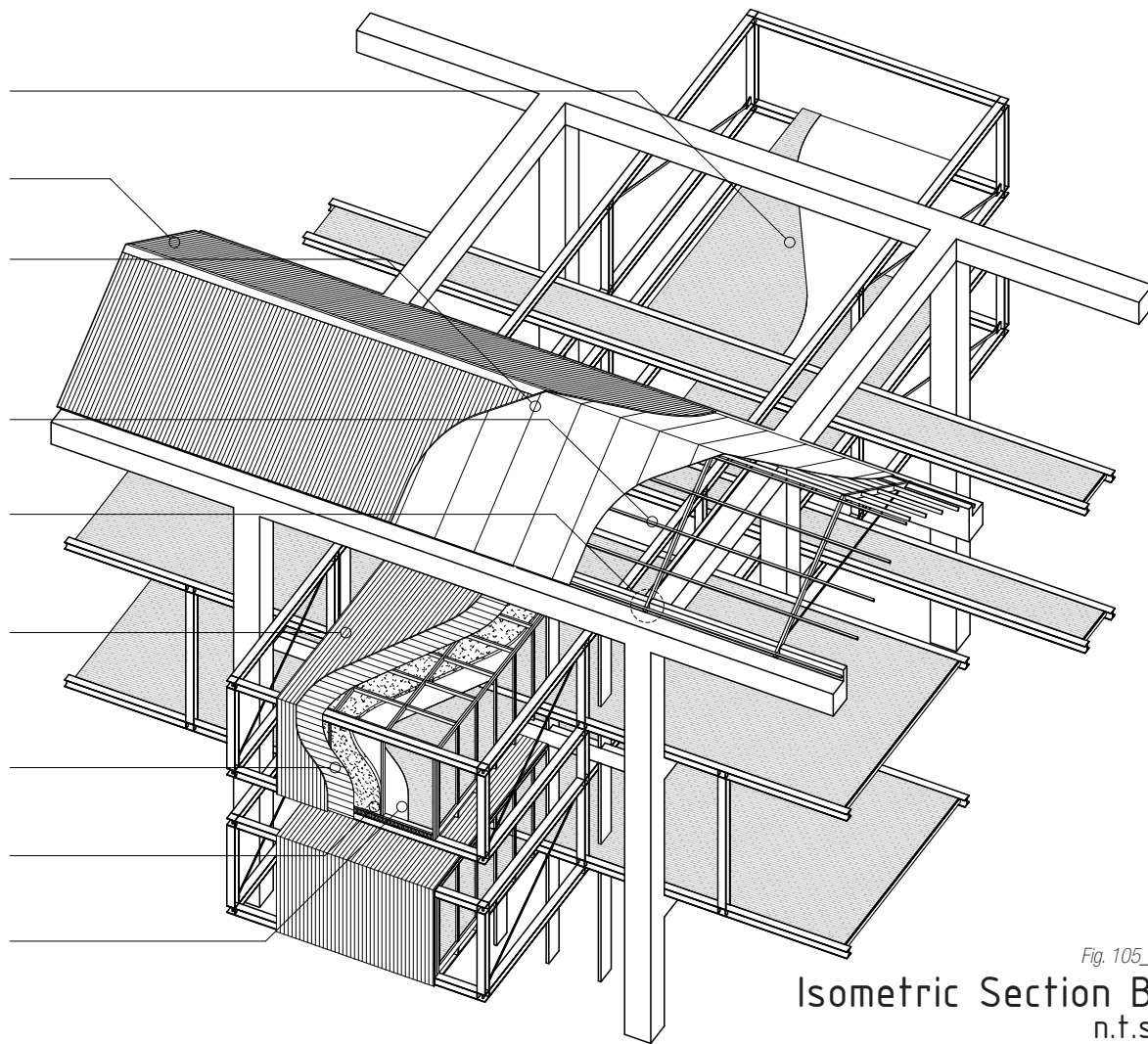


Fig. 105_
 Isometric Section B
 n.t.s.



BAMBOO

7.1.5

Bamboo is used at the Heritage and Mediation Centre for flooring, vertical cladding, and ceiling panels. The material is chosen due to its sustainable characteristics. Moso bamboo stems take approximately 4 years to reach hardness as opposed to solid timbers such as cherry, teak, and oak which require up to 50 years to reach harvestable maturity. Furthermore, bamboo plantations require no pesticides or fertilizers.

Although strand woven bamboo panels are more expensive than solid bamboo panels, the product has a darker finish, softer grain, and is more hardwearing. These characteristics pay homage to the existing timber flooring within the Old Synagogue in terms of colour and longevity.

GLASS

7.1.6

The principle behind glazing in this design is to let in as much natural light as possible, but without solar heat gain. In order to achieve this in a sustainable and cost effective manner, the glazing type is paired with an exterior louvered shading system which simultaneously reduces solar heat gain, and reflects and dapples direct sunlight.

The shading system allows the author the latitude to select a clear laminate glass, as opposed to a tinted high performance glazing type which hinders solar heat gain in winter. A suitable clear glass for this application is Smart Glass Coolvue. According to the manufacturer Coolvue clear will transmit 70% of visible light into the building whilst absorbing 37% of the solar energy (PG Group, 2011).

Fig. 106_ Rheinzink applications (top to bottom): Perth Convention Centre, Australia. Zinkhaus, Copenhagen, Denmark. Prefab Villa by Daniel Libeskind.

RHEINZINK

7.1.7

RHEINZINK – Angled Standing Seam panels were chosen for the cladding of the protruding mediation structures as a means of recognising the fifth façade of the Old Synagogue and its servant buildings. The materials capacity to naturally weather and the manufacturer’s claim of a maintenance free lifespan mimics the condition of the historic buildings roofing and creates an association between old and new. Furthermore, the effects of time and climate are allowed to age the proposed centre, strengthening the association between new architecture and old architecture through materiality.

The product is in keeping with the concept of ‘temporality’ since the panels durability promotes reuse and the concealed fix technology prevents surface penetration. In the event of disassembly or replacement, over ninety five percent of an individual panel can be recycled (RHEINZINK, 2011).

INSULATION

7.1.8

The purpose of glass wool insulation is to reduce solar heat gain and minimise the effect of the inner city noise factor in relation to the private mediation spaces. With regards to sustainability, Isover glass wool insulation is manufactured from a combination of sand and up to eighty percent recycled post-consumed glass that would otherwise go to a landfill site.

According to the manufacturer, a typical Isover glass wool insulation product saves more than one hundred times the energy consumed and Carbon Dioxide emitted in its manufacture, transport, and disposal over a period of fifty years (Isover, 2011).



Fig. 107_ Strand woven bamboo flooring
Fig. 108_ Bamboo clad Rantilla residence

ASSEMBLY E

A premanufactured, made to specification, aluminium framed, glazed and motor operable louvered roof system is proposed for the main atrium volume of the Centre (figure 110). The aluminium frame of any given louver interlocks with its neighbouring louver when closed creating a weatherproof roof. Neoprene strips are specified at overlaps to ensure an airtight seal. Rainwater is channelled through gutters designed into the unit and released at regular outlets.

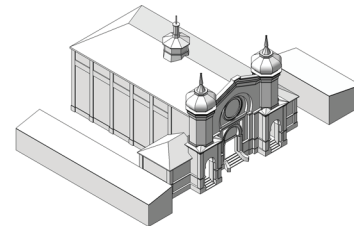
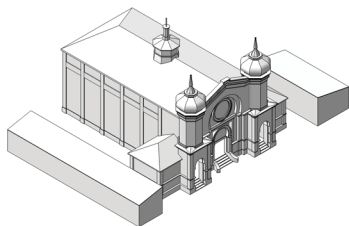
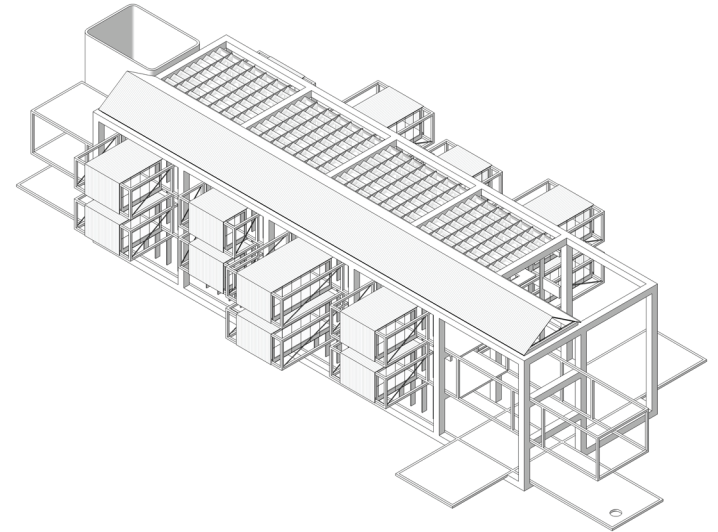
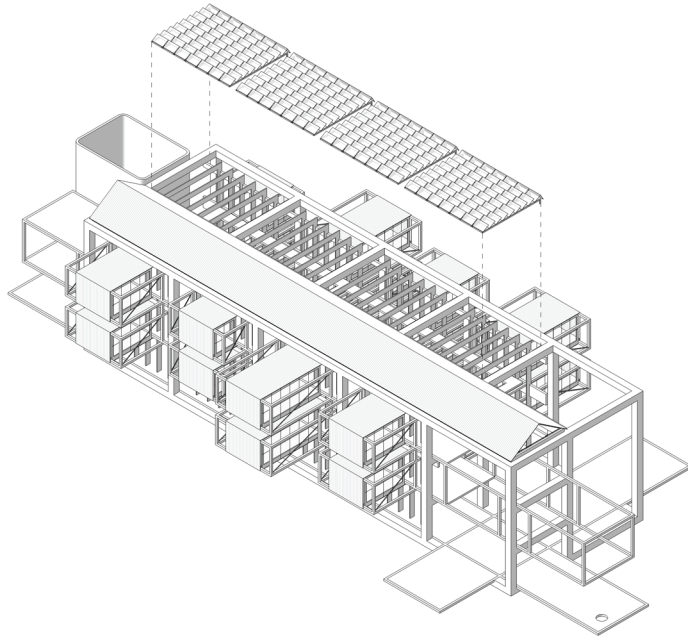


Fig. 109_ Exploded and assembled views of the buildings louvered roof installation

The aluminium frames house panes of Smartglass Coolvue heat reflecting laminated safety glass with a Polyvinyl Butyral Interlayer (additional solar energy reflecting layer), which is coupled with a U.V activated self cleaning film on the exterior side. The louvers pivot action is managed through a hidden tubular motor within the perimeter aluminium mounting section. This motor will be connected to a sun and rain sensor and will be fully automated (LouvreTec, 2011). The lightweight glazed aluminium louvers resist heat gain, whilst facilitating natural ventilation and airflow.

240V 'LouvreTec' tubular motor concealed within rectangular aluminium perimeter section.

Louver unit perimeter gutter.

8.36mm thick Smartglass 'Coolvue' heat reflecting laminated safety glass with a Polyvinyl Butyral Interlayer. U.V activated self cleaning film specified for the exterior face of all glazed louver panes.

Purpose made 'drop-in' aluminium louver roof unit fabricated to architects overall dimensions and specifications. Mechanisation to specialists detail.

100mm thick precast reinforced concrete fins spaced at 2000mm c/c. Precast fins to be ground using a right angle grinder post installation to produce a smooth honed finish.

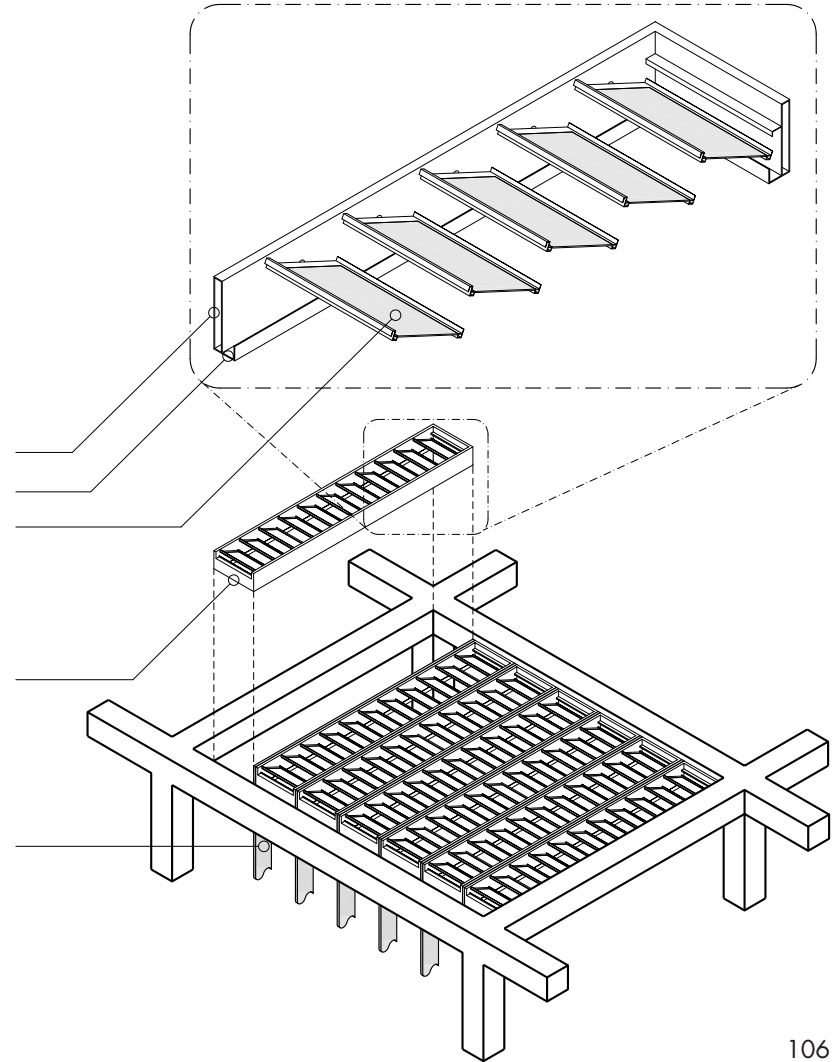
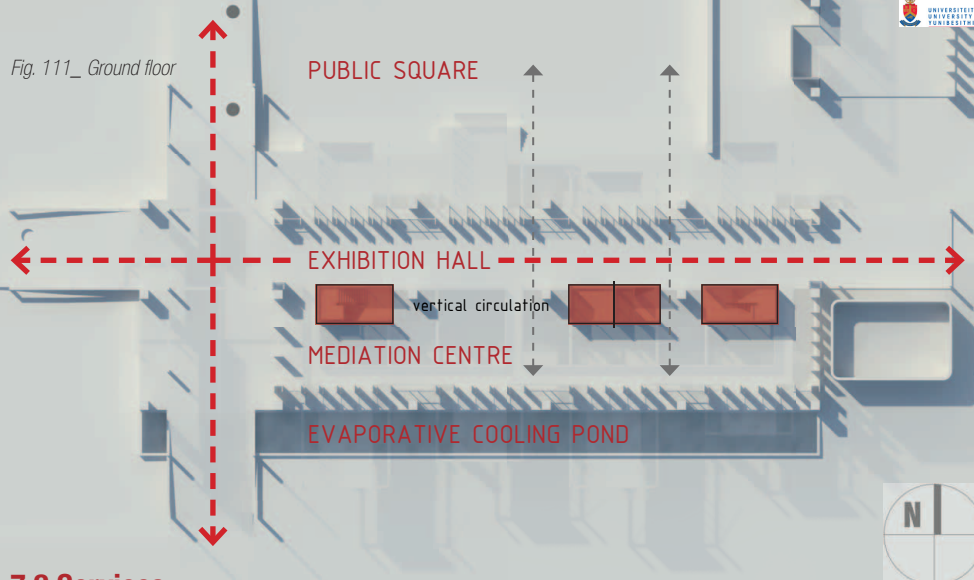


Fig. 110_

Isometric Section C
n.t.s

Fig. 111_ Ground floor



7.2 Services

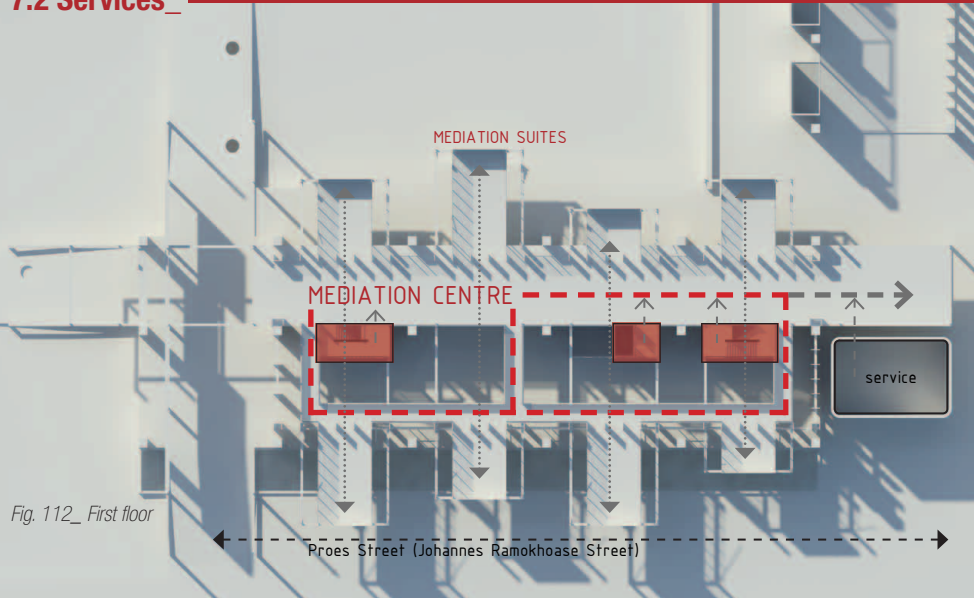


Fig. 112_ First floor

Circulation refers to the manner in which people and services move through and engage with a building. The services for the Heritage and Mediation Centre are broken up into its functional requirements. These include the introduction and manipulation of ventilation, light, thermal comfort, water management and vertical movement. Movement of people within the building and across the site differs depending on the reason for entering the centre.

The north-south axis of the building defines a major public thoroughfare, creating a distinct visual and physical linkage between street and square (figure 111). The gentle slope of the ramp manipulates the landscape forming a transitional plane. This plane extends across the evaporative cooling pond, Mediation centre, Heritage route, and public square, whilst framing a vista of the Old Synagogue. The east-west axis guides visitors on a journey through the Heritage route, and parallels the Mediation centre. The Mediation centre is in constant dialogue with the Heritage route, but is positioned deliberately off the major axis. This is essential since programmatically the mediation process is semi-public in nature.

The service core to the east pays homage to the servant spaces flanking the Old Synagogue. They are detached yet were integral to the functional requirements of the Supreme Court incarnation of the Old Synagogue. The service core adopts a similar detached character, housing wet spaces and facilitating the vertical reticulation of HVAC ducting and telecommunications. The space can be accessed independently via Proes Street (figure 112).

The Heritage and Mediation Centre's seven hundred and fifty square meter roof area has the runoff capacity to meet the buildings un-supplement water consumption requirements for eight months out of a year. The total harvestable rainwater from the main roof structure is 455 000 litres per annum. From this total, 360 000 litres will be stored in six 5000 litre tanks over the course of a year. According to the rainwater harvesting calculations provided in Appendix 2, with the proposed storage capacity there will only be five months of the year were the centre will have to make use of municipal water to supplement the system.

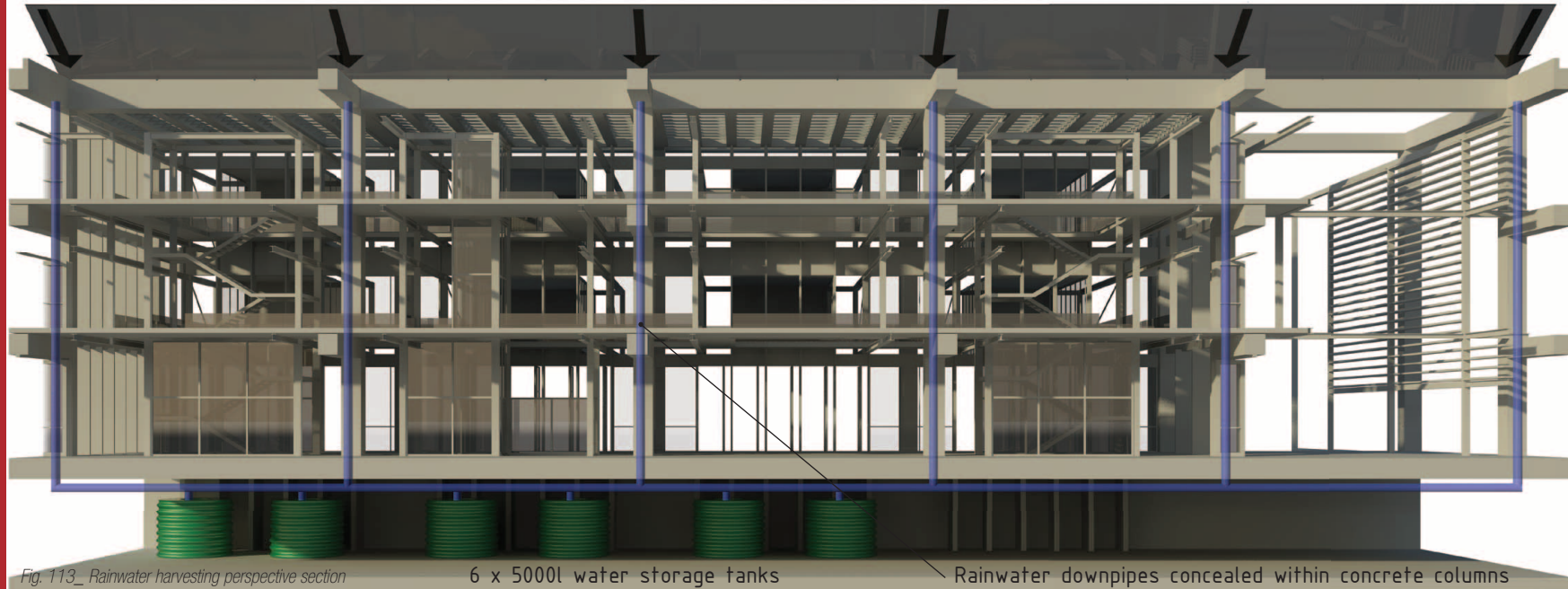
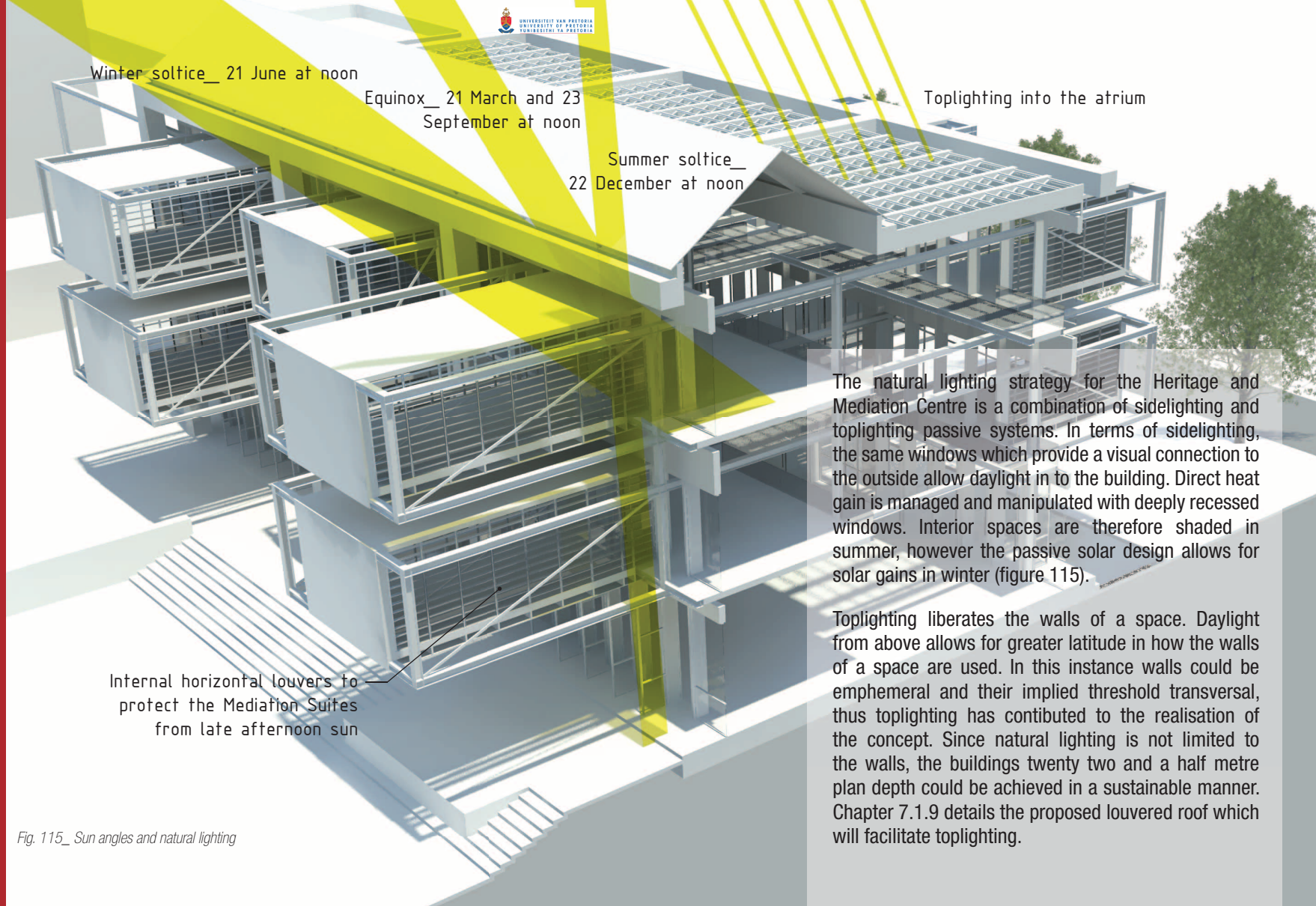


Fig. 113_ Rainwater harvesting perspective section



114
Birds eye view



Winter solstice_ 21 June at noon

Equinox_ 21 March and 23 September at noon

Summer solstice_ 22 December at noon

Toplighting into the atrium

Internal horizontal louvers to protect the Mediation Suites from late afternoon sun

The natural lighting strategy for the Heritage and Mediation Centre is a combination of sidelighting and toplighting passive systems. In terms of sidelighting, the same windows which provide a visual connection to the outside allow daylight in to the building. Direct heat gain is managed and manipulated with deeply recessed windows. Interior spaces are therefore shaded in summer, however the passive solar design allows for solar gains in winter (figure 115).

Toplighting liberates the walls of a space. Daylight from above allows for greater latitude in how the walls of a space are used. In this instance walls could be ephemeral and their implied threshold transversal, thus toplighting has contributed to the realisation of the concept. Since natural lighting is not limited to the walls, the buildings twenty two and a half metre plan depth could be achieved in a sustainable manner. Chapter 7.1.9 details the proposed louvered roof which will facilitate toplighting.

Fig. 115_ Sun angles and natural lighting

A closed loop Geothermal Exchange System uses water with a glycol freeze protection solution that circulates inside sealed high-density polyethylene (HDPE) pipes. These pipes are buried at approximately two metres below the earth's surface to draw heat from the earth which remains at a constant temperature of 8-12° Celsius all year round. The water and glycol solution then enters the building and is pumped to the individual water source heat pumps on each floor. Air delivery is facilitated through ducts which deliver the tempered air from the heat pump to the interior spaces of the building. Finally, the water and glycol solution returns back to the HDPE ground loop outside and the cycle is repeated (figure 117).

The heat pump extracts the heat from the earth in a three part process (figure 116):

- There is a compressor which compresses the refrigerant,
- an air-to-refrigerant heat exchanger,
- and finally, an evaporator where the circulating refrigerant and the ground loop pass in close proximity, and exchange heat.

The heat cycle begins at the compressor. Refrigerant in a vapour form is pressurised at the compressor which raises its temperature. The hot gaseous refrigerant

leaves the compressor and flows to the heat exchanger where incoming room air passes over the heat exchanger's warm coils. The heat from the refrigerant is exchanged to the air flowing in the room. The refrigerant having now given up its heat is condensed into a cool liquid. It must be re-heated to a gaseous state before it can go back the compressor. The evaporator facilitates this process. The cool liquid refrigerant passes in close proximity to the water and glycol solution from the ground loop. Here the heat from the water and glycol solution transfers to the cooler refrigerant causing it to evaporate and turn back into a gas. Once a gas, the refrigerant returns to the compressor to repeat the cycle.

For air conditioning in the summer months the cycle is reversed, absorbing the heat from the air in the rooms, transferring it to the ground loop which gives off the heat to the cooler earth below. According to the manufacturer, Geothermal Exchange heating and cooling operates more efficiently than conventional HVAC systems, saving up to sixty percent on energy costs (Water Furnace International, 2012). Water Furnace International claims the system emits no Carbon Dioxide, Carbon Monoxide, or other greenhouse gases.

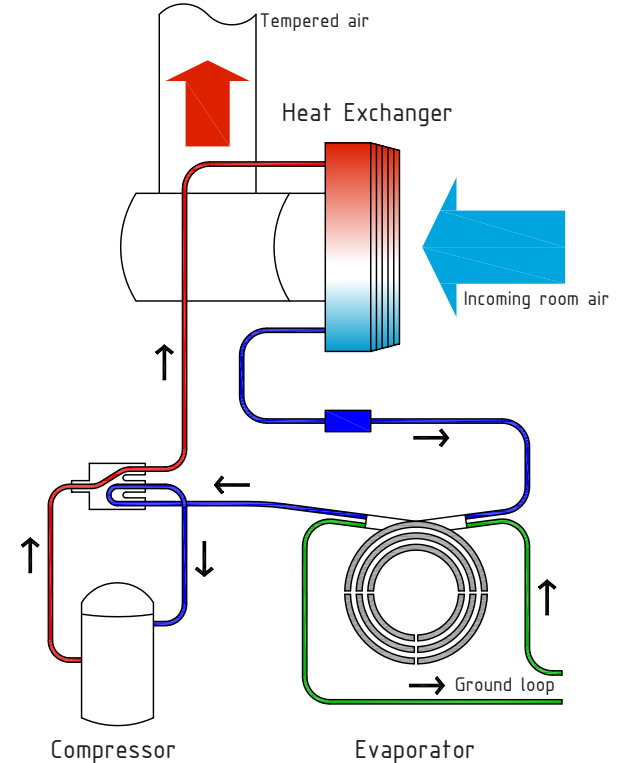
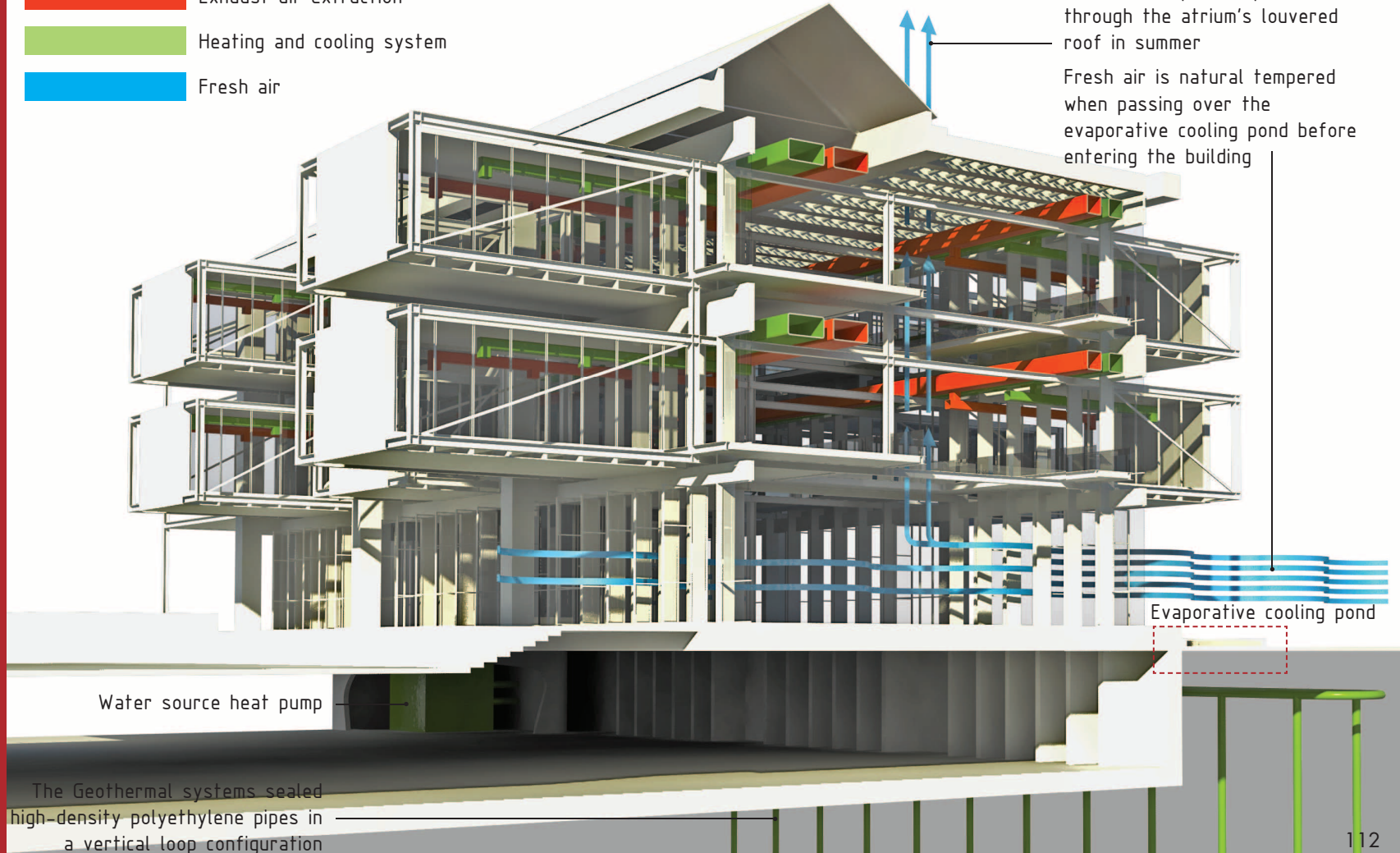


Fig. 116 (above)_ Diagram of Geothermal heating process
 Fig. 117 (next page)_ Airflow digram

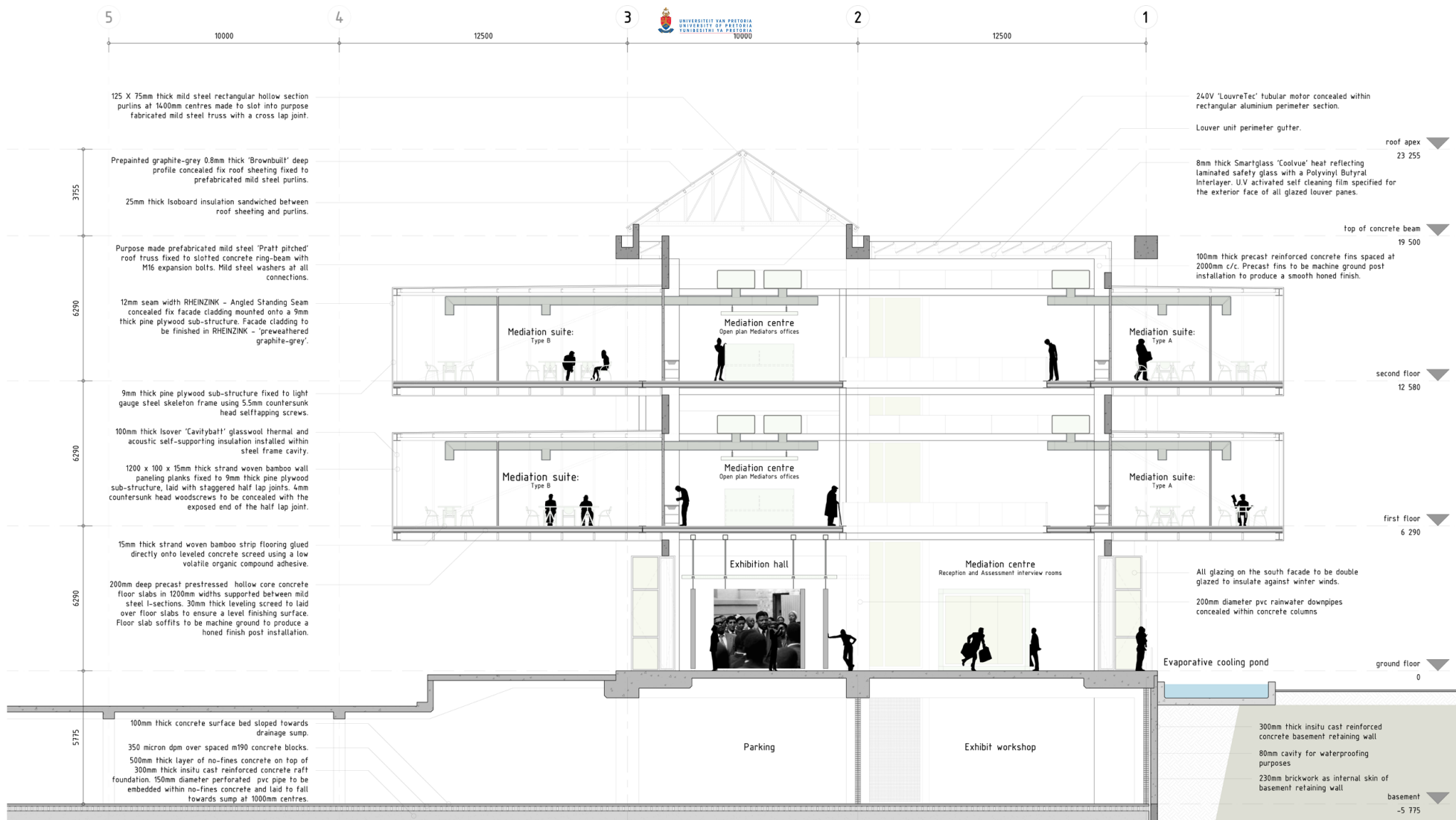
GEOHERMAL EXCHANGE SYSTEM

- Exhaust air extraction
- Heating and cooling system
- Fresh air



7.2.4





125 X 75mm thick mild steel rectangular hollow section purlins at 1400mm centres made to slot into purpose fabricated mild steel truss with a cross lap joint.

Prepainted graphite-grey 0.8mm thick 'Brownbull' deep profile concealed fix roof sheeting fixed to prefabricated mild steel purlins.

25mm thick Isoboard insulation sandwiched between roof sheeting and purlins.

Purpose made prefabricated mild steel 'Pratt pitched' roof truss fixed to slotted concrete ring-beam with M16 expansion bolts. Mild steel washers at all connections.

12mm seam width RHEINZINK - Angled Standing Seam concealed fix facade cladding mounted onto a 9mm thick pine plywood sub-structure. Facade cladding to be finished in RHEINZINK - 'preweathered graphite-grey'.

9mm thick pine plywood sub-structure fixed to light gauge steel skeleton frame using 5.5mm countersunk head selftapping screws.

100mm thick Isover 'Cavitybatl' glasswool thermal and acoustic self-supporting insulation installed within steel frame cavity.

1200 x 100 x 15mm thick strand woven bamboo wall paneling planks fixed to 9mm thick pine plywood sub-structure, laid with staggered half lap joints. 4mm countersunk head woodscrews to be concealed with the exposed end of the half lap joint.

15mm thick strand woven bamboo strip flooring glued directly onto leveled concrete screed using a low volatile organic compound adhesive.

200mm deep precast prestressed hollow core concrete floor slabs in 1200mm widths supported between mild steel I-sections. 30mm thick leveling screed to laid over floor slabs to ensure a level finishing surface. Floor slab soffits to be machine ground to produce a honed finish post installation.

100mm thick concrete surface bed sloped towards drainage sump.
350 micron dpm over spaced m190 concrete blocks.
500mm thick layer of no-fines concrete on top of 300mm thick insitu cast reinforced concrete raft foundation. 150mm diameter perforated pvc pipe to be embedded within no-fines concrete and laid to fall towards sump at 1000mm centres.

240V 'LouvreTec' tubular motor concealed within rectangular aluminium perimeter section.

Louver unit perimeter gutter.

roof apex
23 255

8mm thick Smartglass 'Coolvue' heat reflecting laminated safety glass with a Polyvinyl Butyral Interlayer. U.V activated self cleaning film specified for the exterior face of all glazed louver panes.

top of concrete beam
19 500

100mm thick precast reinforced concrete fins spaced at 2000mm c/c. Precast fins to be machine ground post installation to produce a smooth honed finish.

second floor
12 580

first floor
6 290

All glazing on the south facade to be double glazed to insulate against winter winds.

200mm diameter pvc rainwater downpipes concealed within concrete columns

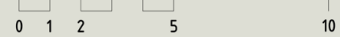
ground floor
0

Evaporative cooling pond

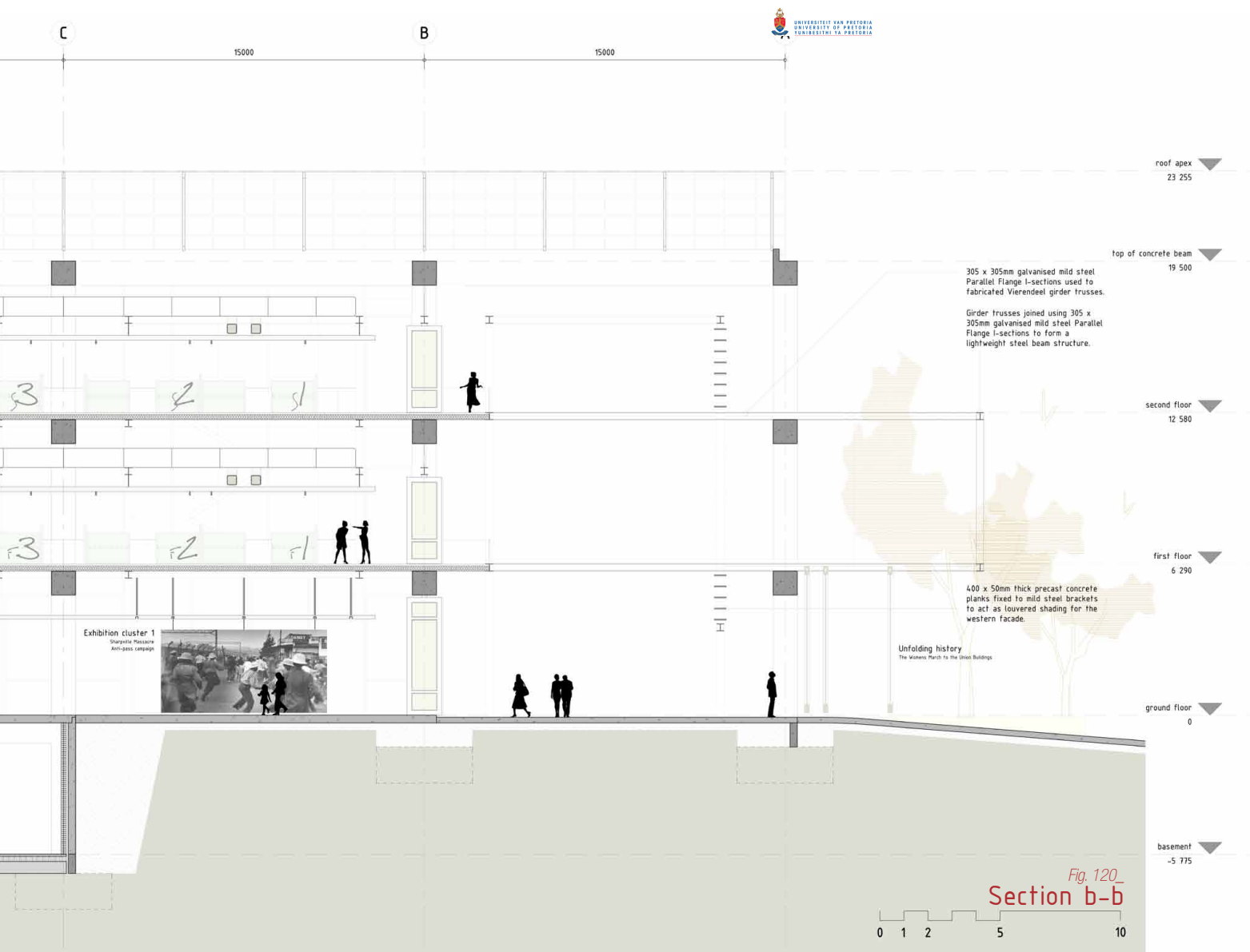
300mm thick insitu cast reinforced concrete basement retaining wall
80mm cavity for waterproofing purposes
230mm brickwork as internal skin of basement retaining wall

basement
-5 775

Fig. 119_ Section a-a







Internal perspective
Fig. 121_

CHAPTER 08



Fig. 122_ Restored impression of the Old Synagogue



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CHAPTER 09

fig. 123_ Restored impression of the Old Synagogue





APPENDICES

9.1 Appendix 1_

Visit to the Pretoria Hebrew Congregation (PHC) to conduct an Interview with:

Rabbi Gideon Fox

246 Schroder Street, Groenkloof
Wednesday, 11 May 2011
2pm – 3pm

Background:

Architecture: Creation of Cultural Heritage Sites S.A + How to develop an approach to commemorating the Old Synagogue as a South African Heritage Site.

Fran and Barbara Buntman – Old Synagogue and apartheid court – Constructing a South African Heritage Site_ interviewed Derek Ossip (Pretoria Hebrew Congregation).

Can you please give me a brief background of PHC, and explain the differences between a **Progressive and Traditional** congregation_

Interview:

Words in Jewish Culture are very significant – 1 word has different interpretations, and one must understand the **context** the word was said in, and what was said **before**, and what will be said **after**. Therefore it is crucial to understand the Hebrew **concept of time**.

Time is understood as linear – a Greek concept, but the Hebrew concept is circular...
Can you comment on that?

The **Torah** is God's word, and is all that is of value_ It is the **intangible** essence of Judaism, Am I fair in saying that?

History: Historically there was no Synagogue as such; there was the Tabernacle (still representing the intangible), which was a lightweight, moveable, adaptable structure that contained the Torah. There wasn't a house of worship – the focus was placed completely on the worship of God. Is this correct?

My historic facts here are sketchy. Israel wanted a king, and the king needed a place of worship - which resulted in a **tangible** place of worship. The ancient temple layout was used_

In Babylon, the immaterial lead to a specific typology – this is the Synagogue typology, but the furniture etc. was still moveable, the rituals were most important. Can you comment on this, and perhaps explain some of the rituals. I understand that there is a particular importance in **Ritual cleansing**, and the association to water (living water).

Another **ritual** is that of **walking** to the Synagogue,

not driving, but actually walking. This played a major role in the location of the Synagogue and the proximity from where the congregation lived in relation to the Synagogue. I understand that historically the majority of the Jewish congregation lived in Pretoria's historic inner city; therefore this determined the location of the Old Synagogue. Is the ritual of walking still practiced and can you give more insight into this ritual?

So the procession to the Synagogue was a ritual, and when you reached the Synagogue there were washbasins for the purpose of cleansing oneself before entering the main hall of the Synagogue.

I want to speak about the significance of Movement inside the Synagogue:

My understanding of how the Old Synagogue was used is that men sat on ground level and women upstairs in a gallery, not facing the Ark, but facing the a central aisle where the Torah was carried from the back of the main hall to the Ark or most holy. Therefore the act of moving the Torah was of utmost significance. Am I correct in saying that and can you explain the significance of this ritual?

Can you enlighten me on how a service would have been conducted then and how it is conducted today? Finally, can you give me your opinion on the Old Synagogue?

Notes from meeting with Rabbi Gideon Fox of P.H.C

- There is not progressive Judaism in South Africa.
- Stems from a difference in belief and ideology.
- Traditional: Books from Moses – given by God (5 books of Moses).
- Reform small in S.A – does not believe that the 5 books of Moses are divine, therefore they are much more malleable to fit the norms of society.
- Orientation: Front towards Israel -Israel towards Jerusalem - Temple Mound.
- Wherever they are in the world, Jews face Israel when they pray.
- Rituals – Cleansing – water.
- Life and death, water in 3 parts to it in heaven (HOH).
- Walking: The significance of walking to the Synagogue is on the Sabbath - It is a symbiotic relationship.
- Where people lived, you need a Synagogue because of the Sabbath.
- Within the Synagogue: The congregation faced the central aisle where the scrolls would be moved to the arc. The significance of the scrolls is such that one would not turn their back to it (out of respect) and if one could touch or kiss it, one is further blessed.
- The Tabernacle: means the “tent”; “place of dwelling” or “sanctuary”. (It is the sacred place where God chose to meet his people, The Israelites during the 40 years they wandered in the desert under Moses’ leadership. It was the place where the Leaders and the people came together to worship and offer sacrifices.
- 30m x 10m x 5m high dismantle holy structure which contained 2 stone tablets on which the Ten Commandments were written - The Arc of covenant.
- The Tabernacle could be dismantled and was a moveable structure, but by no means was it lightweight or adaptable.

9.2 Appendix 2_

Rainwater harvesting calculations:

Area of roof x Annual rainfall = Harvest capacity of roof

$$750\text{m}^2 \times 674\text{mm} = 505\,500 \text{ L}$$

505 500 L - 10% (losses from evaporation) = **454 950 L per annum**

Water consumption calculations:

Water consumption device:	No. of devices:	Water consumption per device:	No. of uses per day:
Flush toilets	18	7 L	8
Urinals	6	1 L	16

Water consumption for total number of devices per day = **1104 L per day**

Water consumption per month (23.5 active days per month average for building) = **25 944 L per month**

Sizing of rainwater harvesting system:

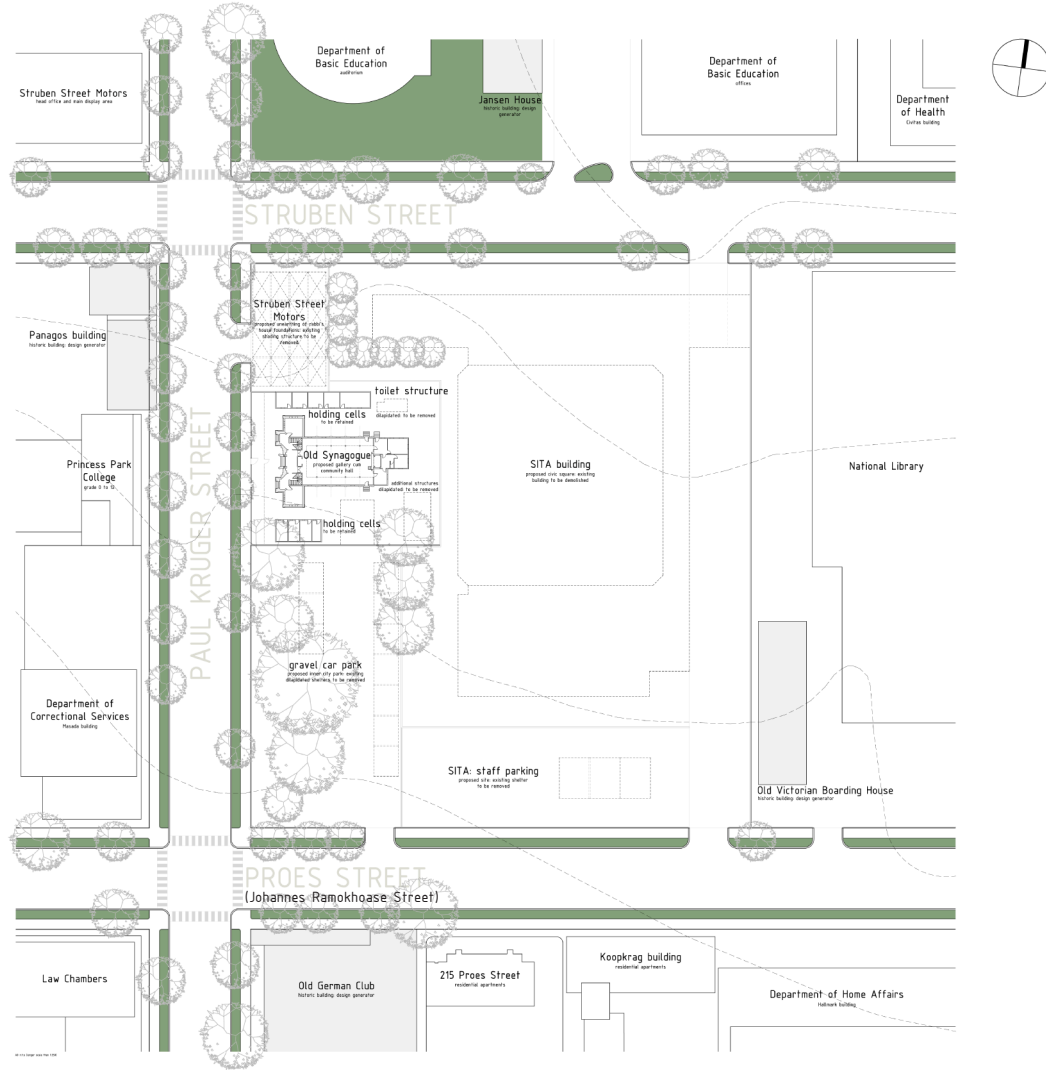
Months with low or no rainfall:	Consumption:	Required capacity:
4	26 000 L	104 000 L

Therefore, (5000 L tank) x 6 = **30 000 L capacity per month**

Contribution of rainwater harvesting system:

Month:	Rainfall (mm):	Harvestable rainfall:	Monthly consumption:	Additional municipal water required:
January	136	102 000	26 000	0
February	75	56 250	26 000	0
March	82	61 500	26 000	0

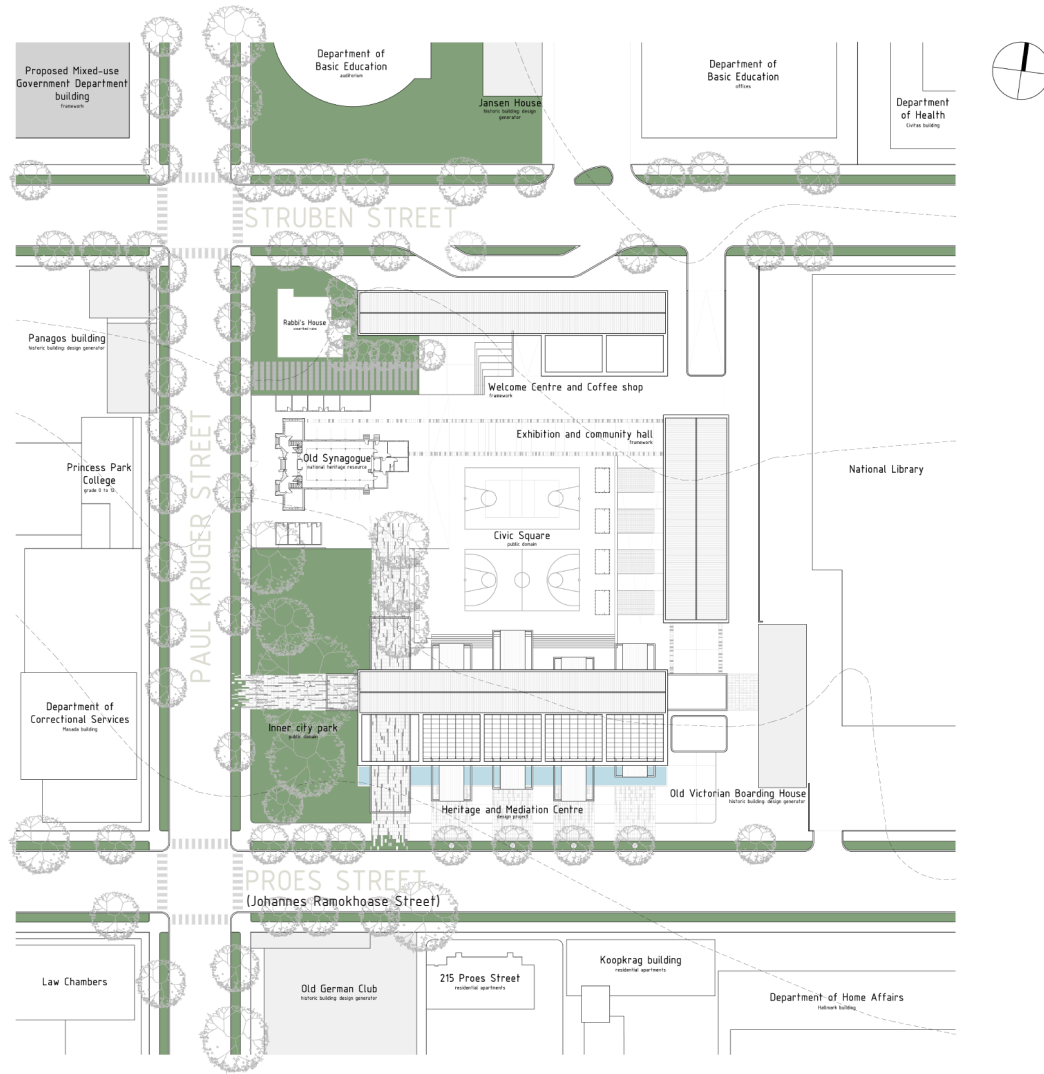
Month:	Rainfall (mm):	Harvestable rainfall:	Monthly consumption:	Additional municipal water required:
April	51	38 250	26 000	0
May	13	9 750	26 000	16 250
June	7	5 250	26 000	20 750
July	3	2 250	26 000	23 750
August	6	4 500	26 000	21 500
September	22	16 500	26 000	9 500
October	71	53 250	26 000	0
November	98	73 500	26 000	0
December	110	82 500	26 000	0
Total	674mm	413 700 L	312 000 L	91 750 L



EXISTING SITE LAYOUT

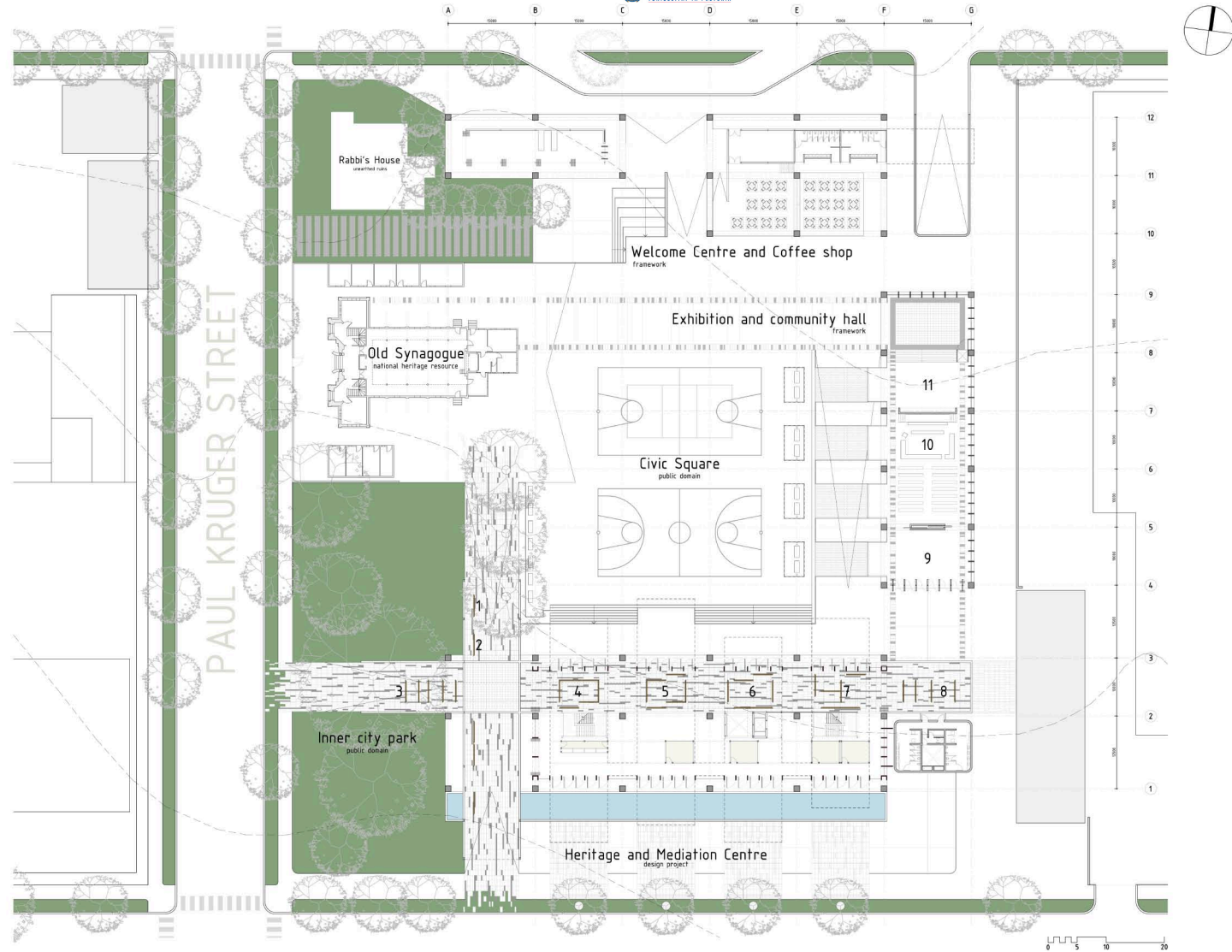
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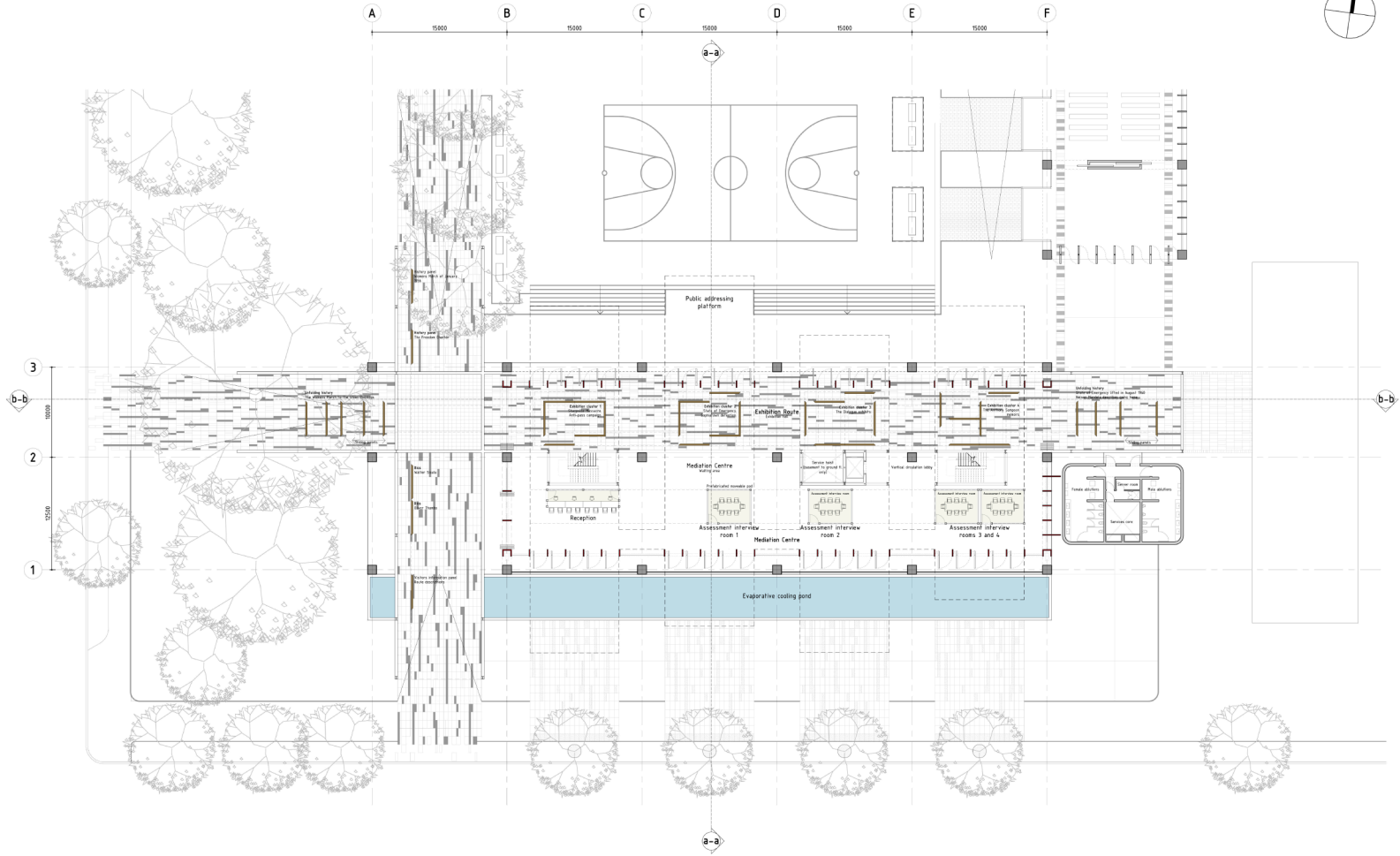
PROPOSED SITE LAYOUT
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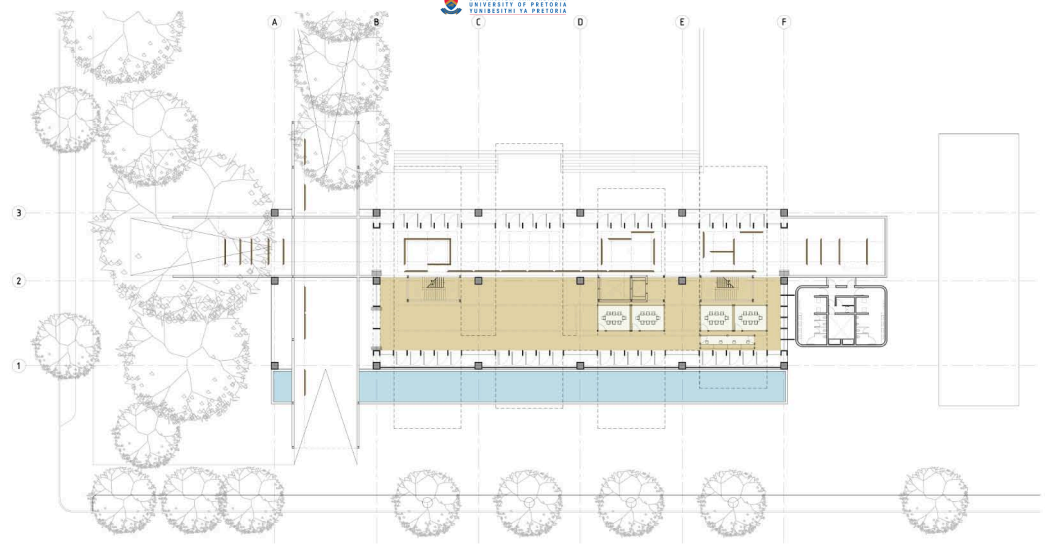




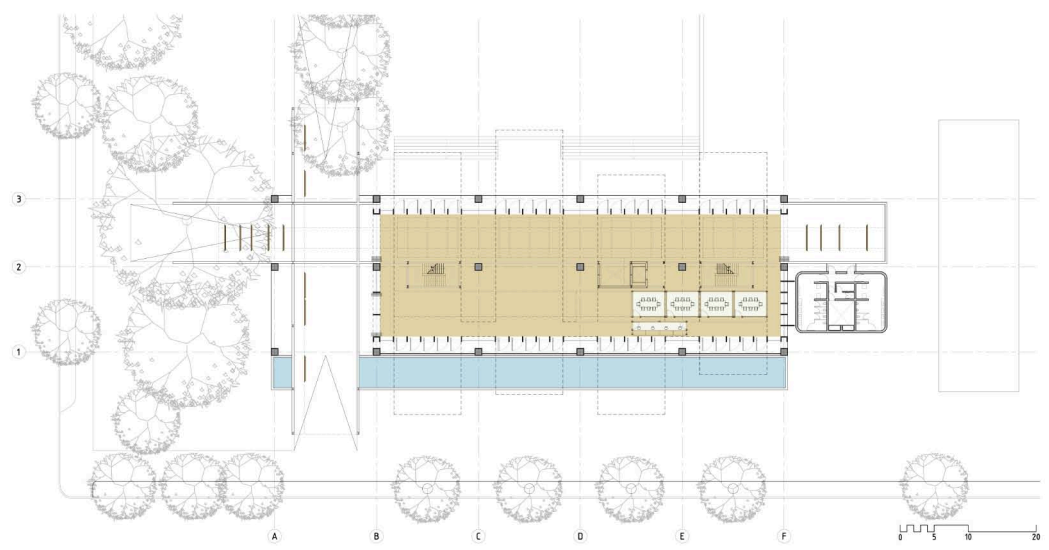
SITE LAYOUT PLAN





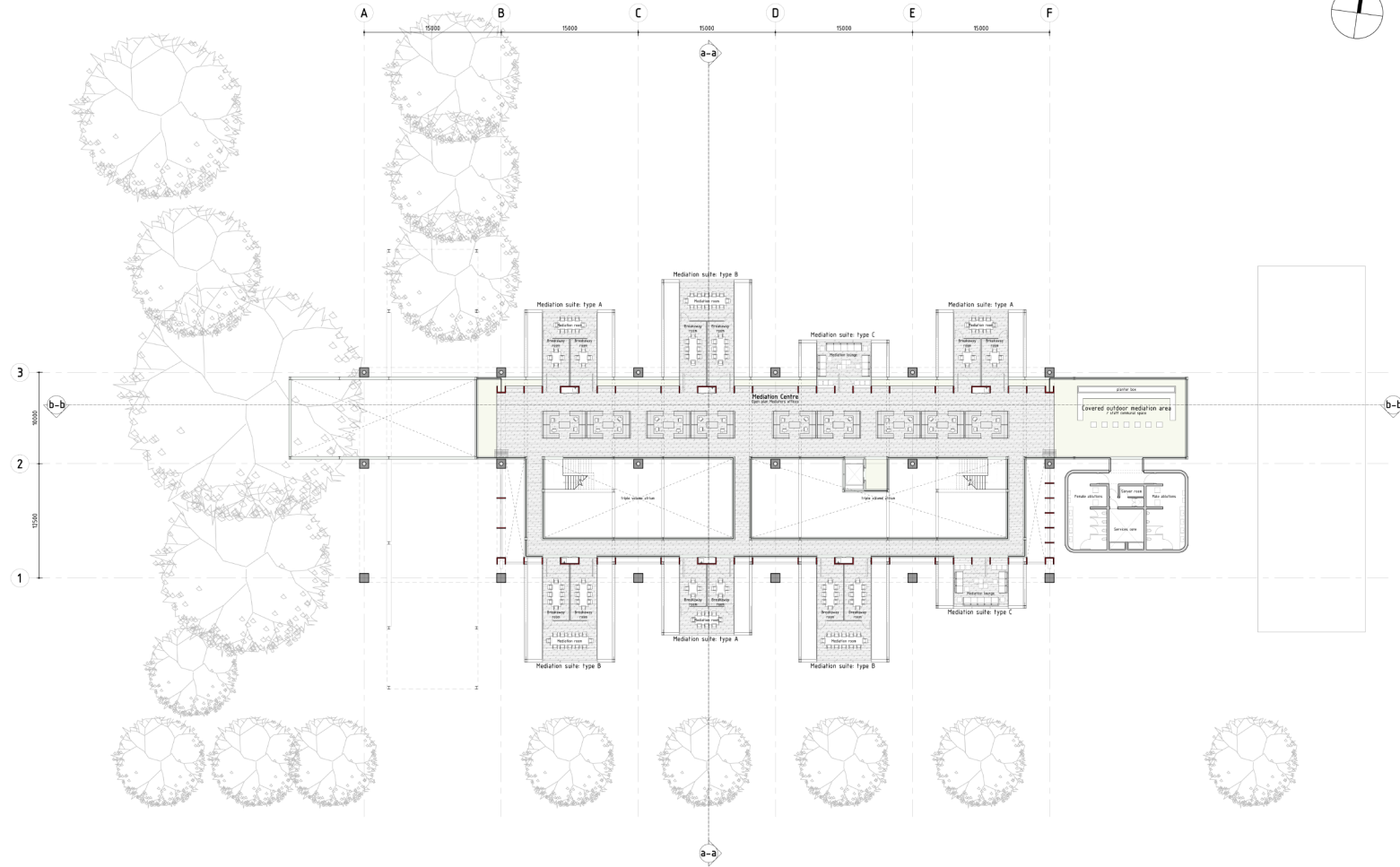


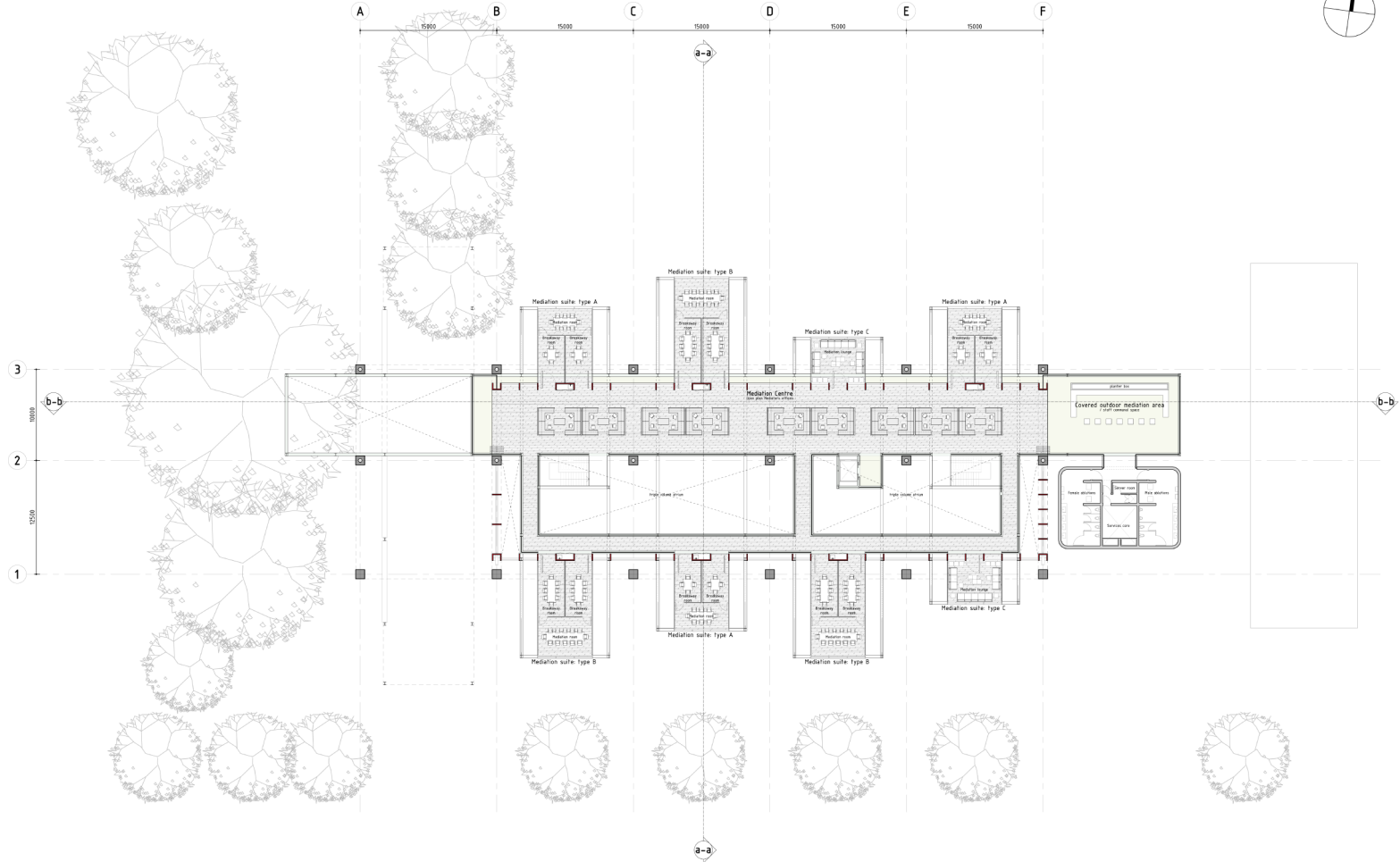
CONFIGURATION 'B'



CONFIGURATION 'C'







SECOND FLOOR PLAN
1:200



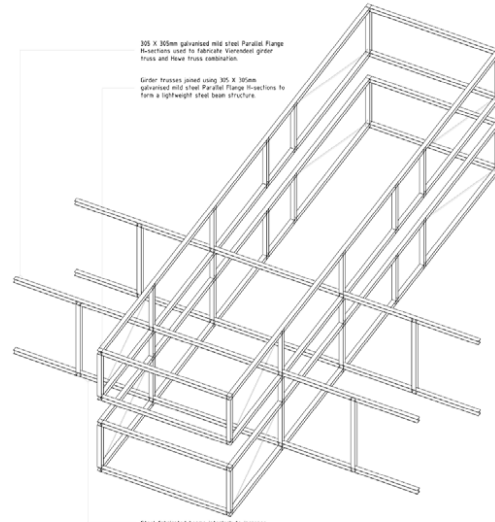
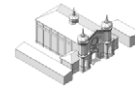
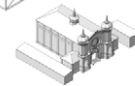
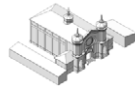
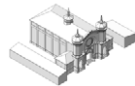
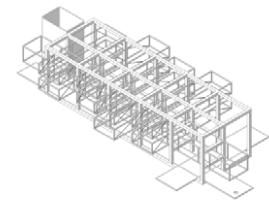
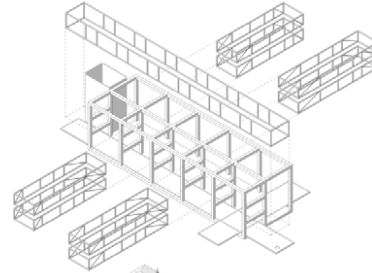
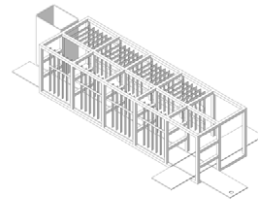
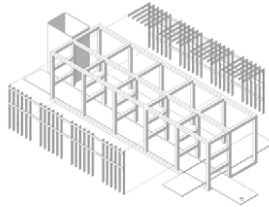


ASSEMBLY A

CONCRETE STRUCTURE

ASSEMBLY B

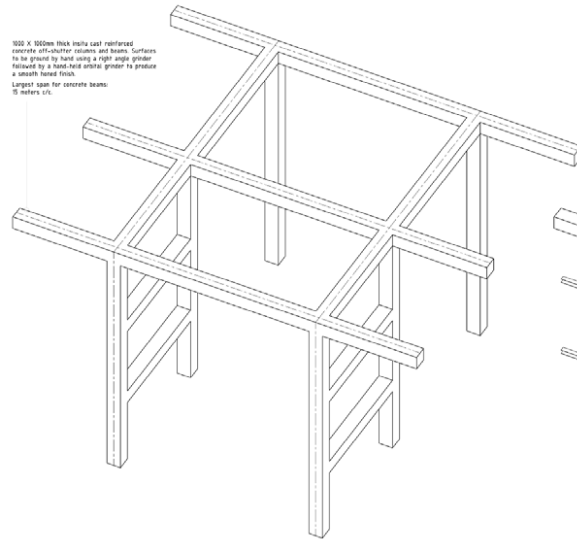
MILD STEEL STRUCTURE



305 X 305mm galvanneal mild steel Parallel Flange Beams used to fabricate Varanded girder truss and Howe truss combination.

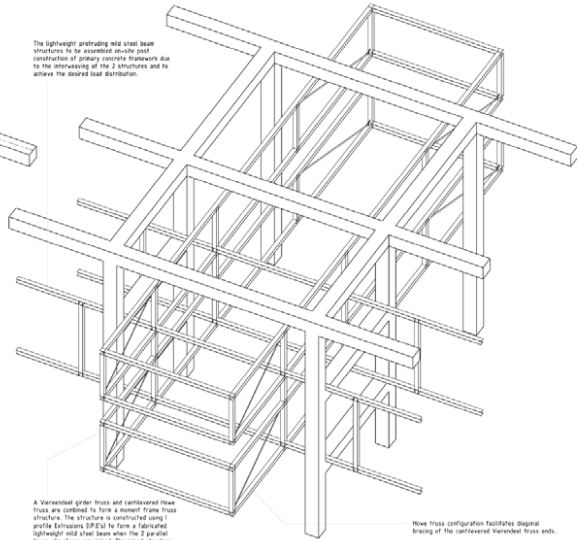
Girder trusses joined using 305 X 305mm galvanneal mild steel Parallel Flange I-bections to form a lightweight steel beam structure.

Steel fabricated beams inferior to increase rigidity and stability



100 X 100mm thick hot-rolled reinforced concrete self-caster slabs and beams. Surfaces to be ground by hand using a right angle grinder followed by a hand-held white primer to produce a smooth finish.

Largest span for cast-in-place beams: 15 meters life.

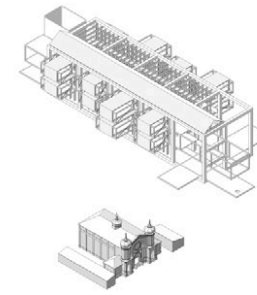
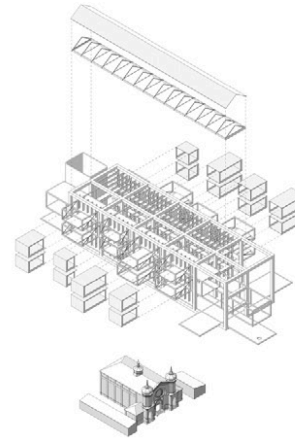
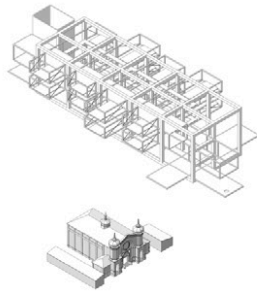
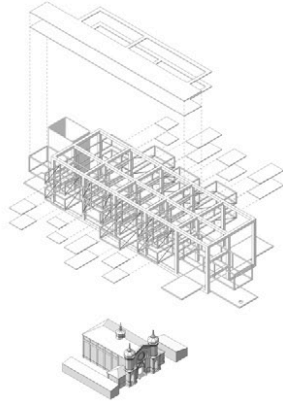


The lightweight galvanneal mild steel beam structure to be assembled inside post-construction of primary concrete framework due to the interlocking of the 2 structures and to achieve the desired load distribution.

A Varanded girder truss and cantilevered Howe truss are combined to form a mixed frame truss structure. The structure is constructed using profile Extruded LPSs by form a separated lightweight mild steel beam when the 2 parallel truss structures are joined. The joined structure is commonly known as a two-way Varanded truss.

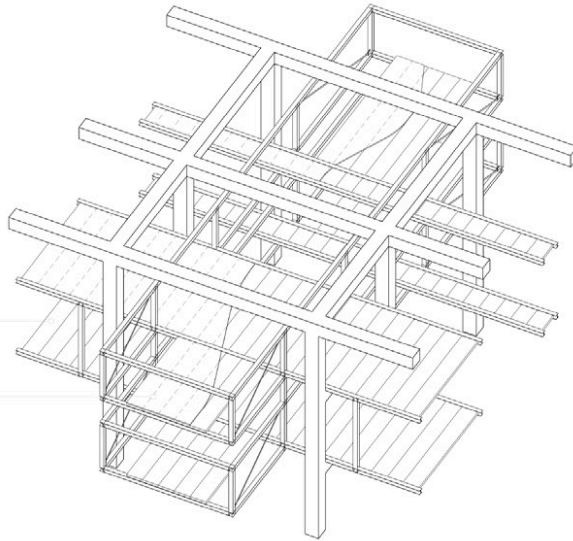
Howe truss configuration facilitates diagonal bracing of the cantilevered Varanded truss ends.

PRIMARY STRUCTURE



200mm deep precast prestressed hollow core concrete floor slabs in 100mm with supported between mid steel sections.

30mm thick leveling screed to laid over floor slabs to ensure a level finishing surface. Sawdust pine plywood strips to be affixed between floor slab sections pointing inward by 30mm to create a joint between the screed surface of floor slab sections inwards. The screed joint ensures the floor sections remain independent of each other and enables effective dismantling after the floor finish is stripped away.



10mm thick strand woven bamboo strip flooring glued directly onto-bonded concrete slab using a low volatile organic compound adhesive.

Prepainted galvanized-iron 6mm thick 'breakout' deep profile concealed fix roof sheathing fixed to perforated mid steel joints.

25mm thick insulation sandwiched between roof sheathing and purlins.

125 x 75mm thick mild steel rectangular hollow section purlins at 1400mm centres made to suit site purpose fabricated mid steel frame with a cross lap joint.

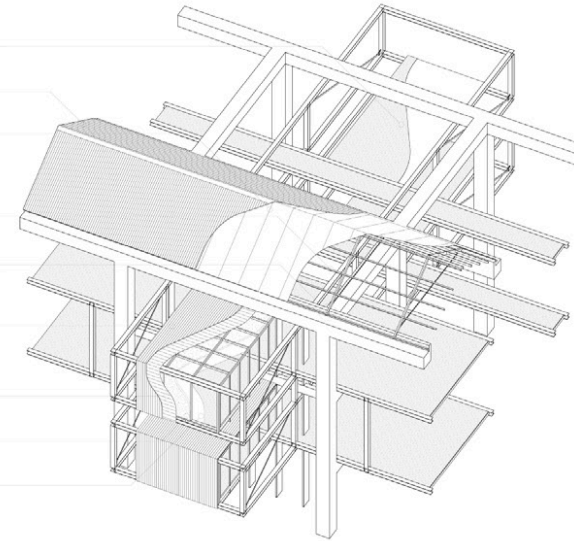
175 x 75mm thick mild steel rectangular hollow section purlins at 1400mm centres made to suit site purpose fabricated mid steel frame with a cross lap joint.

15mm seam with vertically orientated RHEINZINK - Angled Sliding Seam concealed fix facade cladding mounted onto a 50mm thick pre-painted sub-structure. Facade cladding to be finished in RHEINZINK - powdercoated graphite-grey.

5mm thick zinc plated sub-structure fixed to light gauge steel skeleton frame using 5.5mm counterbore head self-tapping screws.

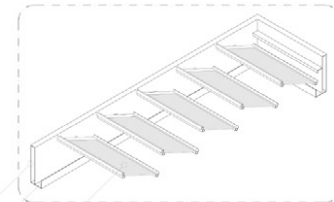
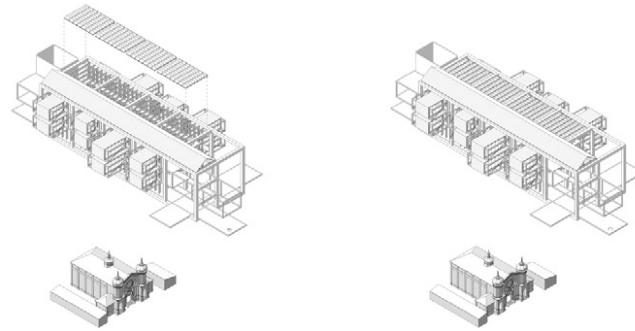
100mm thick heavy 'Castlight' glassless thermal and acoustic self-supporting insulation installed within steel frame cavity.

100 x 100 x 15mm thick strand woven bamboo wall paneling planks fixed to 50mm thick zinc plated sub-structure. Joint with staggered half lap joints. 4mm counterbore head wood screws to be concealed with the recessed end of the half lap joint.



ASSEMBLY E

LOUVERED ROOF



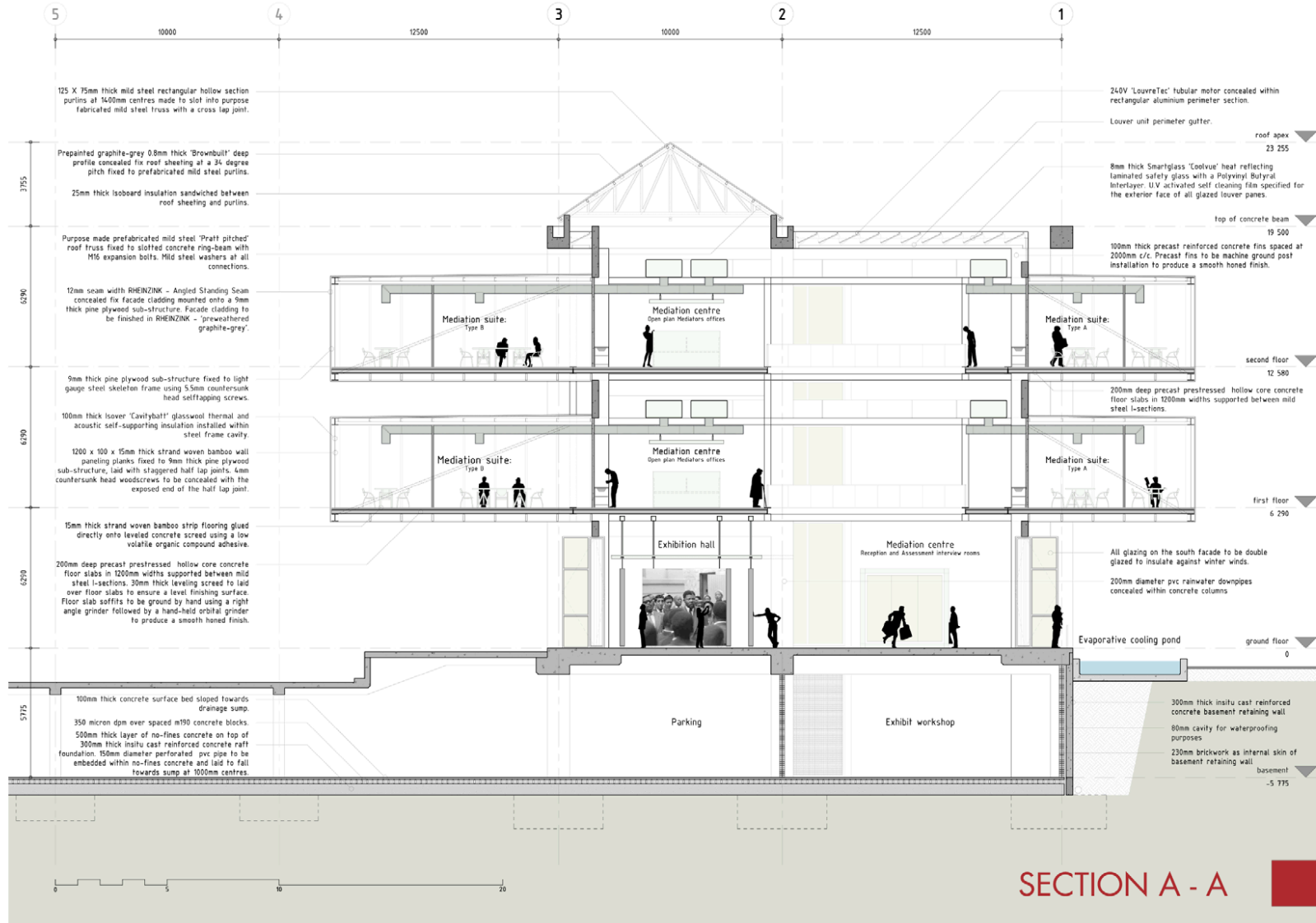
240V 'LouverTec' tubular motor concealed within rectangular aluminum perimeter section.

Louver unit perimeter option.

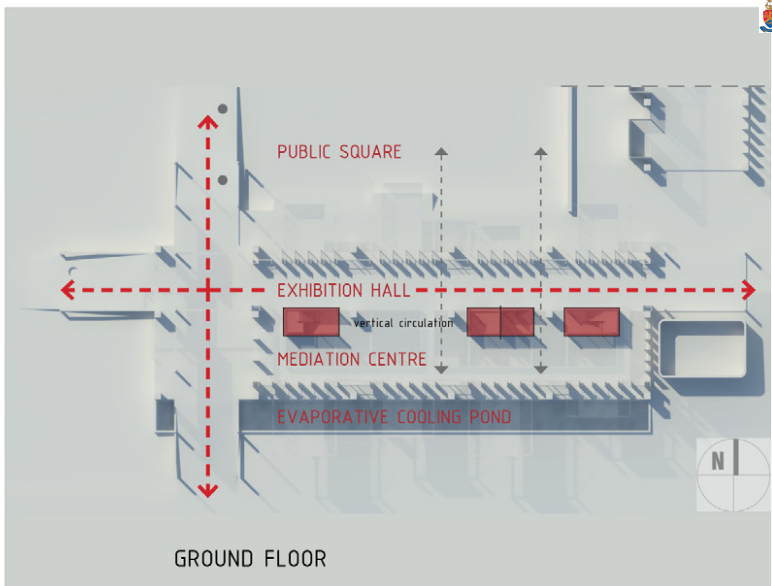
8mm thick clear/glass 'louver' panel reflecting laminated safety glass with a Polysung® louver reflector. If required, all glazing has specified for the exterior face of all glazed louver panels.

Purpose made 'strip-of' aluminum louver roof unit fabricated to architect's overall dimensions and specifications. Mechanisation to specialist's detail.

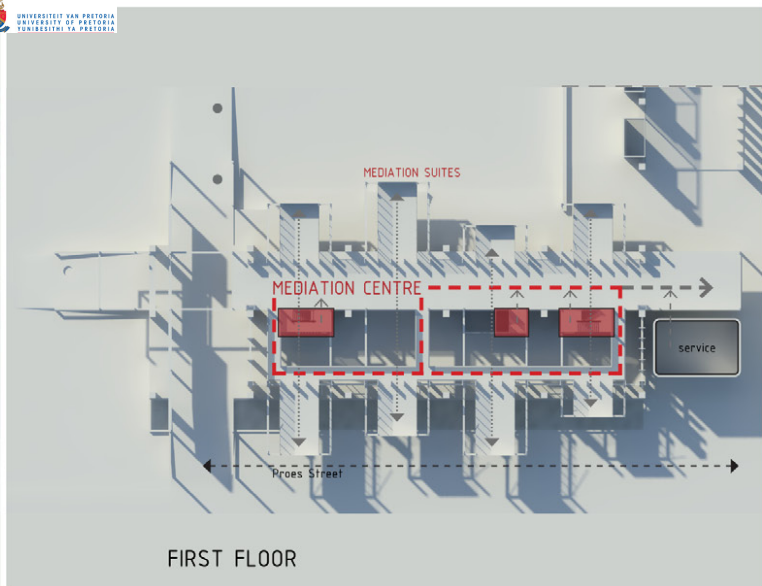
100mm thick precast reinforced concrete fins spaced at 2000mm (C/S). Precast fins to be machine ground steel installation to produce a smooth finish.



SECTION A - A

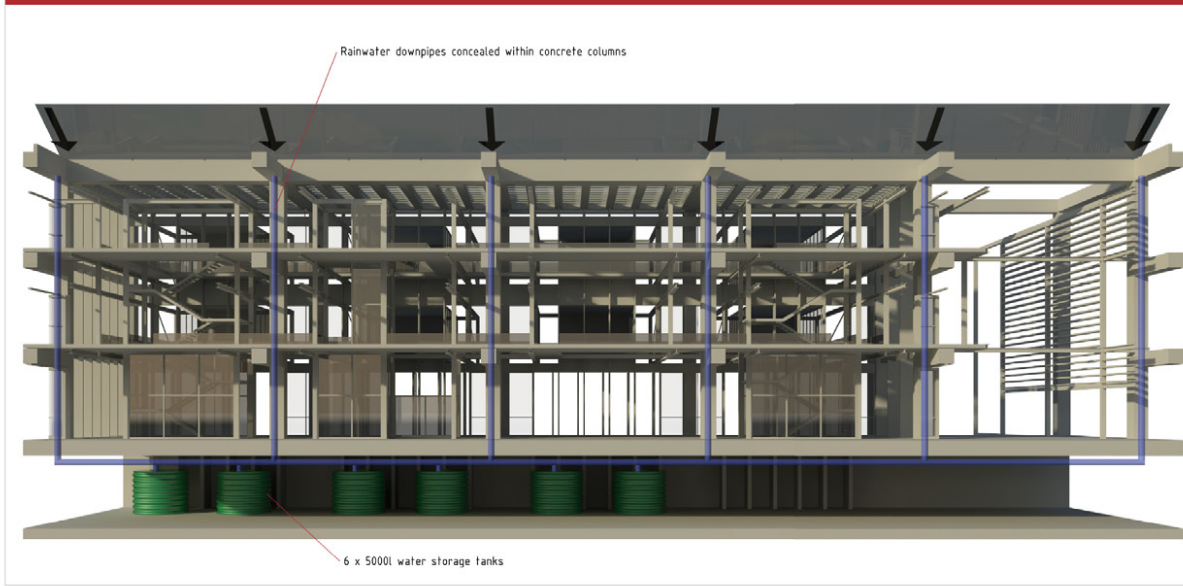


GROUND FLOOR



FIRST FLOOR

CIRCULATION



Summary

Rainwater harvesting calculations:
 Area of roof x Annual rainfall = Harvest capacity of roof
 $750m^2 \times 674mm = 505\ 500\ L$
 $505\ 500\ L - 10\% \text{ (losses from evaporation)} = 454\ 950\ L \text{ per annum}$

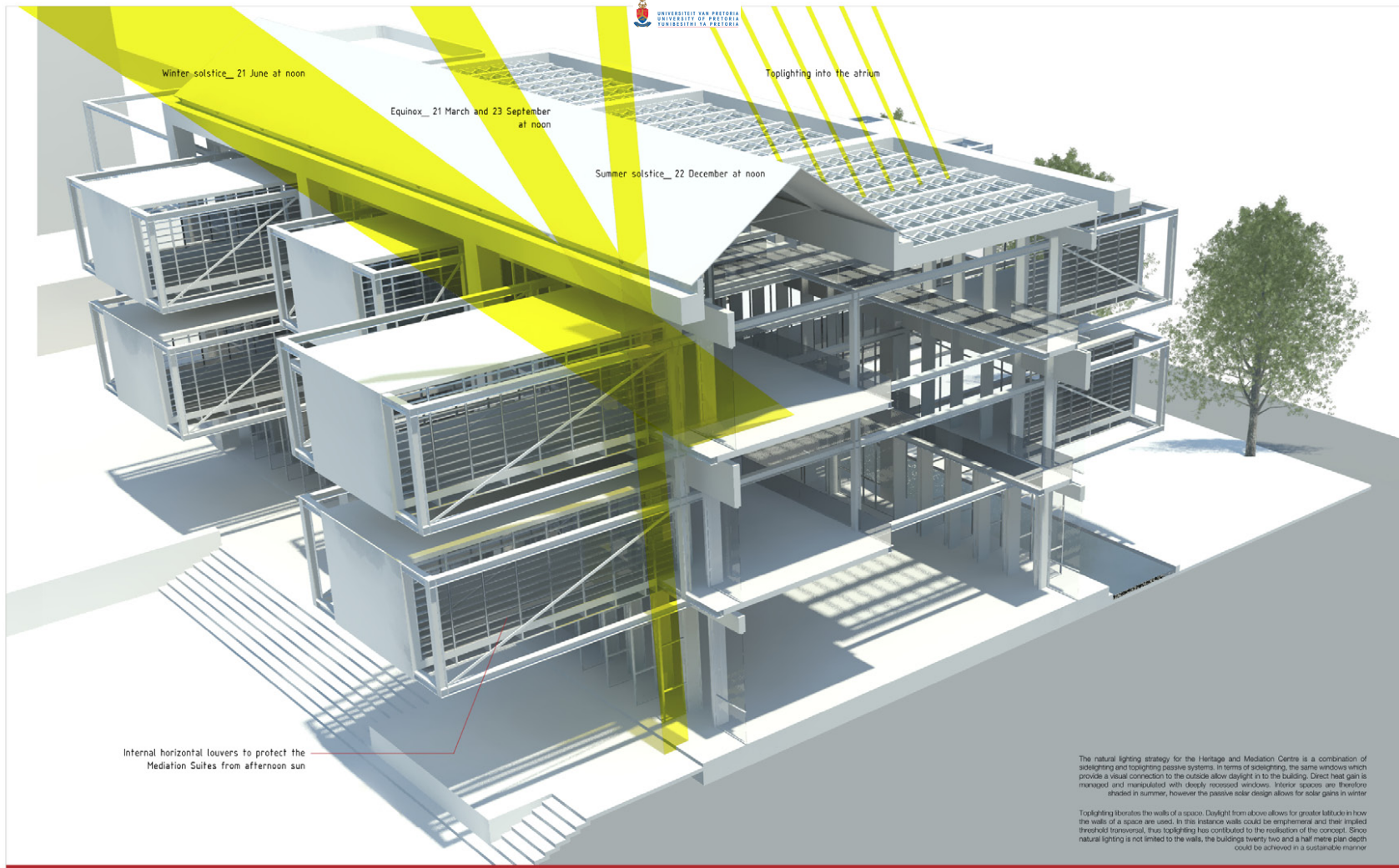
Water consumption calculations:
 Water consumption for total number of devices per day = 1104 L per day
 Water consumption per month (23.5 active days per month average for building) = 25 944 L per month

Months with low or no rainfall: 4
 Consumption: 26 000 L
 Required capacity: 104 000 L

Sizing of rainwater harvesting system:
 $(5000\ L \ \text{tank}) \times 6 = 30\ 000\ L \ \text{capacity per month}$

RAINWATER COLLECTION



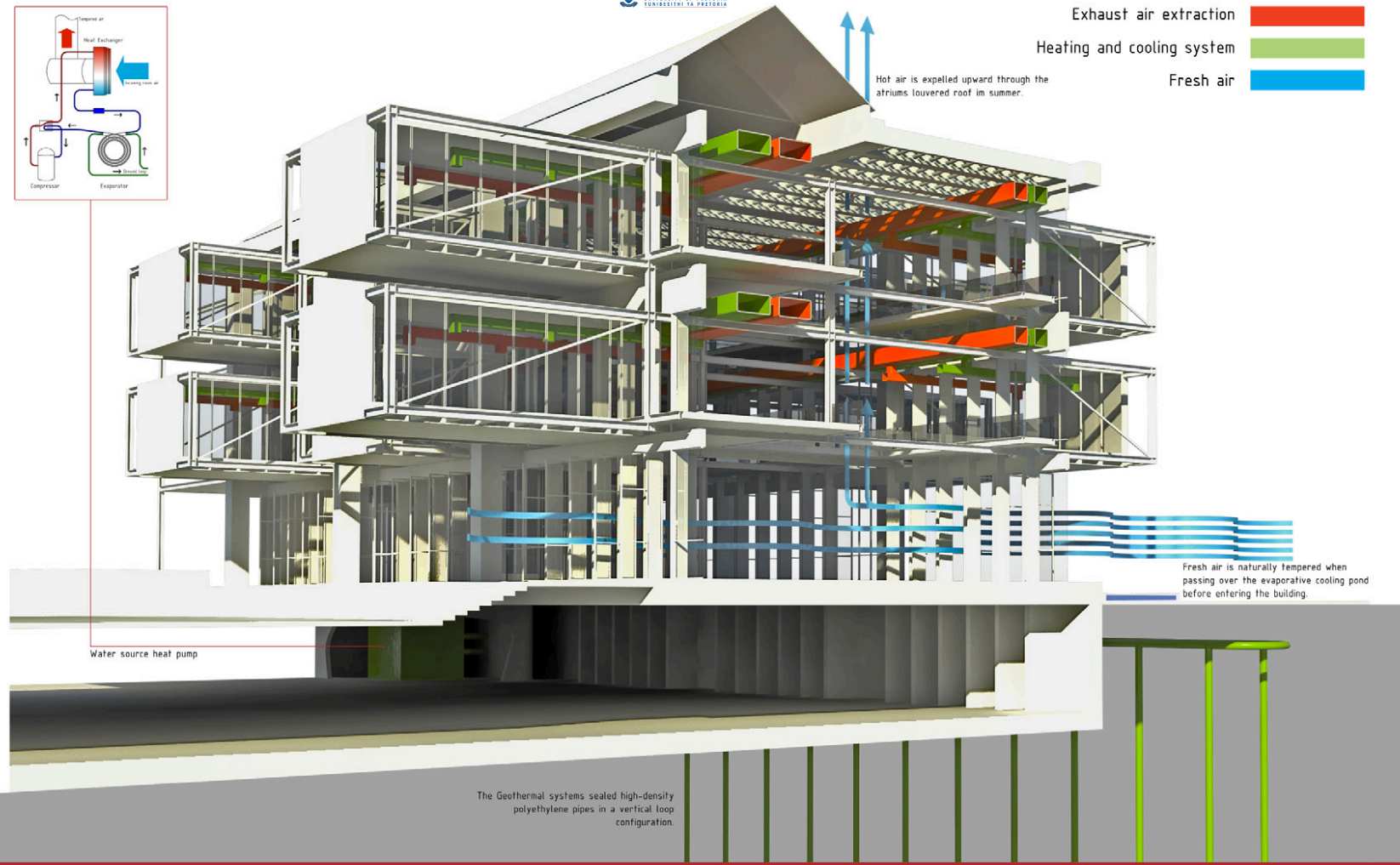
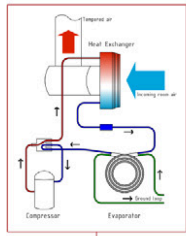


Internal horizontal louvers to protect the Mediation Suites from afternoon sun

The natural lighting strategy for the Heritage and Mediation Centre is a combination of sidelighting and toplighting passive systems. In terms of sidelighting, the same windows which provide a visual connection to the outside allow daylight in to the building. Direct heat gain is managed and manipulated with deeply recessed windows. Interior spaces are therefore shaded in summer, however the passive solar design allows for solar gains in winter

Toplighting borrows the walls of a space. Daylight from above allows for greater latitude in how the walls of a space are used. In this instance walls could be empirical and their implied threshold transversible, thus toplighting has contributed to the realisation of the concept. Since natural lighting is not limited to the walls, the building's twenty two and a half metre plan depth could be achieved in a sustainable manner





Exhaust air extraction █
Heating and cooling system █
Fresh air █

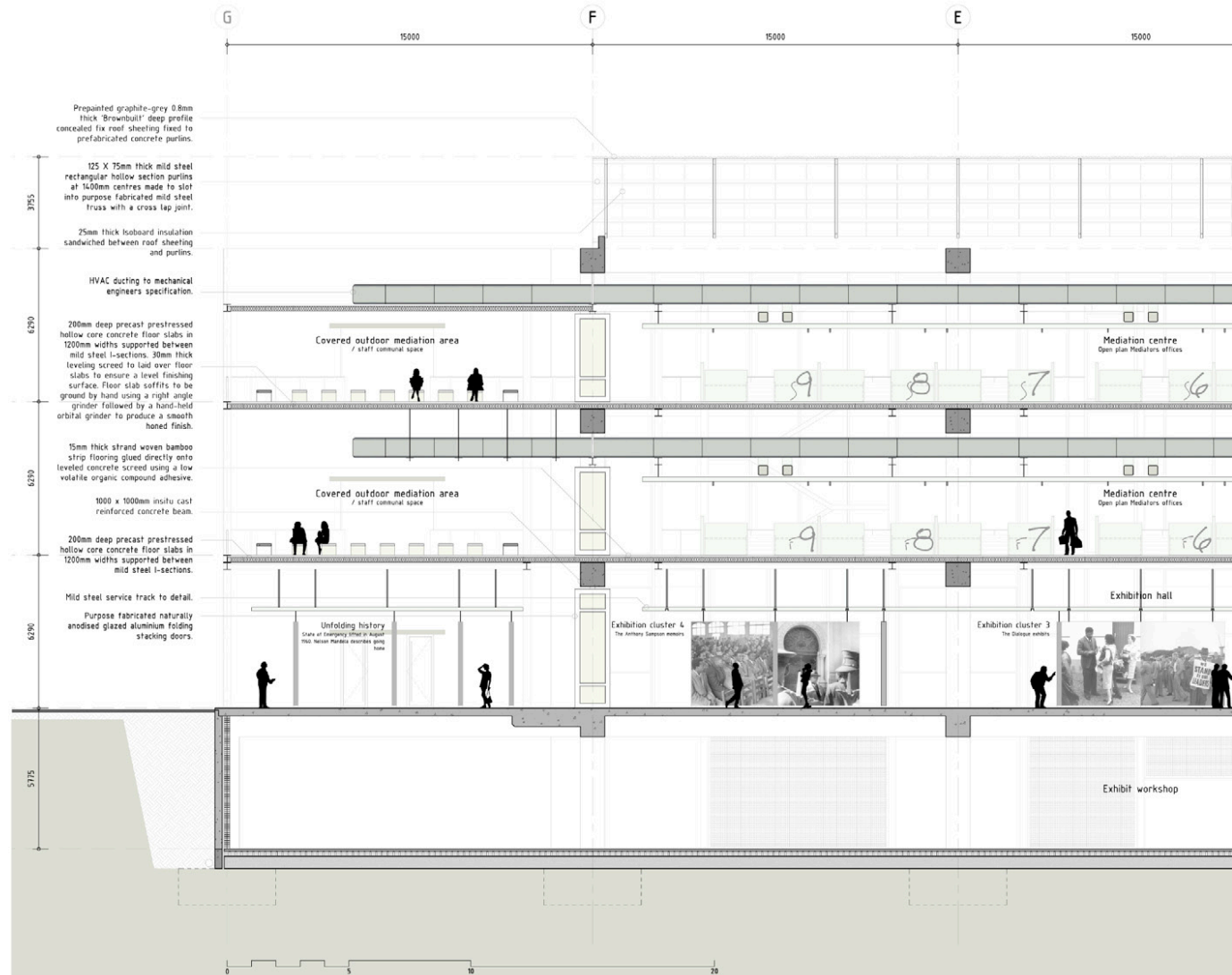
Hot air is expelled upward through the atrium's louvered roof in summer.

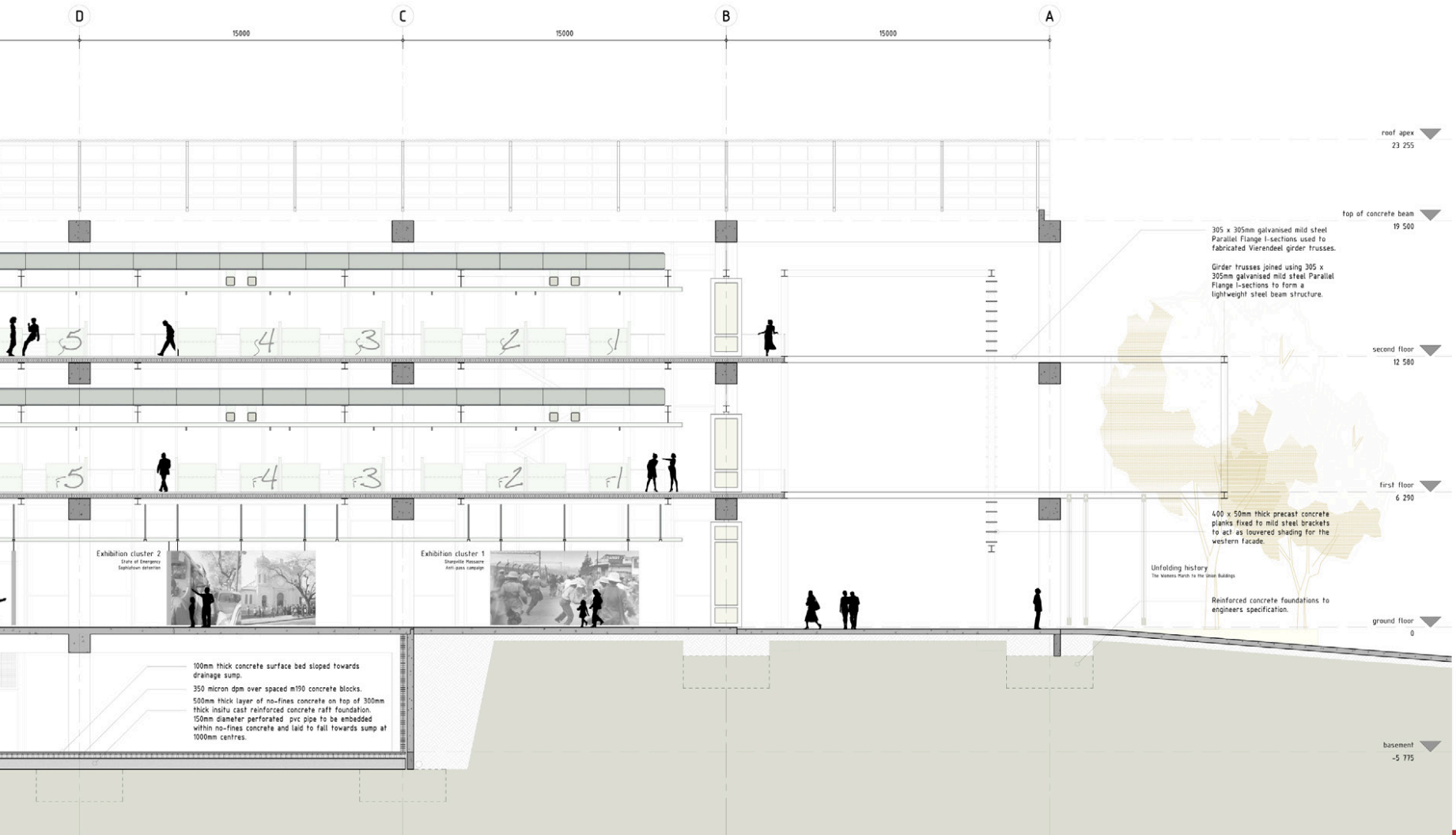
Fresh air is naturally tempered when passing over the evaporative cooling pond before entering the building.

Water source heat pump

The Geothermal systems sealed high-density polyethylene pipes in a vertical loop configuration.

GEOHERMAL EXCHANGE SYSTEM





SECTION B - B



