Global Museum

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Abstract:
The task of this project is to design a visitor-orientated museum using contemporary museum design models and state-of-the-art display technologies and link them with other international museum organizations so as to put Pretoria on the global museum map. Such a facility will also provide the people of Pretoria with a wealth of freely available and accredited information from local, national and international sources, as well as recreation and enjoyment. The museum could fit into the existing urban fabric, to contribute to the city's cultural and economic status.
The Global Museum could then be a building tying museum-related information into a contemporary visitor-orientated display using digital and cyberspace technology to allow both dynamic and visitor-specific displays, allowing each individual visitor to be a curator for his/her own cultural landscape.
The museum should focus on commercial, recreational, and visitor enjoyment activities to promote museum popularity and privatize/de-politicize the museum. The museum should also cater for mass-information availability, interactive visitor experience and social functions as well as any personal agenda the visitor might have that would lead to a museum activity a person would take for granted. (Falk H. and Dierking LD. 1990)

"The visitor's personal context is perhaps the single greatest influence on the visitors museum experience … is important for museum professionals to understand the significance of visitors' agendas and to recognize that they can be manipulated by the museum"
(Falk H. and Dierking LD. 1990:37)

An architectural problem we are faced with today is the integration of physical and virtual space with the medium through which people view and perceive the digital. While databases, information networks and internet-related information sources are primarily Information Technology (IT) problems, the interface/medium between these and humans are architectural in nature.

Keywords:
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Index

Introduction 6
- Scenario 6
- Problematic 6
- Enquiry 1 6
- Enquiry 2 6
- Enquiry 3 6
- Enquiry 4 7
- Task 7
- Proposal 7
- Global Museum 7
- The Main Literature Sources Used In This Project 8
- Precedent Studies 9
- Structure Of This Document 9
- Client 9

History And Museum Development 11
- 1.1 Defining The Museum 11
- 1.2 Museum Development 11
- 1.3 Museum Of Modern Art 15
- 1.4 Post War Europe 19
- 1.5 The Pompidou Centre 19
- 1.6 South African Museums 21
- 1.6.1 The Pretoria Art Museum 21

Precedent Studies 23
- 2.1 Dynamic Containers 23
- 2.1.1 The Pompidou Centre 23
- 2.2.2 Sainsbury Centre 23
- 2.2 People Containers 25
- 2.2.1 The Blur Building 2002 25
- 2.2.2 ICA Waterfront Museum 2006 27

Digital Realm 31
- 3.1 Brief Introduction To Digital Culture 31
- 3.2.1 Virtual Reference Rooms 31
- 3.2.2 Reconstructions 31
- 3.2.3 Networks 31
- 3.3 ‘Smectic State’ - The Aegis Wall 33

The Great Egyptian Museum Project - Giza 35
- 4.1 The Brief Of The New Great Egyptian Museum Concept 35
- 4.2 Site 37
- 4.3 Theory The Brief Suggests For The New Great Egyptian Museum 37
- 4.4 Objectives Of The New Great Egyptian Museum 37
- 4.5 How The New Great Egyptian Museum Should Incorporate The Virtual 39
- 4.6 Museum Layout And Exhibitions 39
- 4.7 Museum Functions 39
- 4.8 Visitor Orientated Social Functions 41
- 4.9 Commercial Aspects And Feasibility 41
- 4.10 How Function Determines Space 41
- 4.11 Hyper-textual Routes 43

Site Analysis 45
- 5.1 Site Criteria 45
- 5.2 Tshwane Inner City Programme 45
- 5.3 Heritage 47
- 5.4 Analysis Of Skinner Street 49
- 5.4.1 Skinner Street As It Was Before Its Upgrade 49
- 5.4.2 Skinner Street In Its Current Condition 49
- 5.4.3 Site Degradation 51
- 5.4.4 Skinner Street After Intervention 51
- 5.5 Site Adjustments 53
- 5.5.1 Removal 53
- 5.5.2 Additions 53
- 5.6 Pedestrian Walkway 53
- 5.7 Views 57

Proposed Global Museum - Design Concept 56
- 6.1 Design Influences 56
- 6.2 Design Concept 56
- 6.2.1 Vertical Contours 56
- 6.2.2 Concept Evolution 67
- 6.3 Concept Models 66
- 6.4 The Proposed Global Museum And Its Site 69
- 6.5 Museum Display 69
- 6.6 Pedestrian Access 71
- 6.7 Museum Interior 73

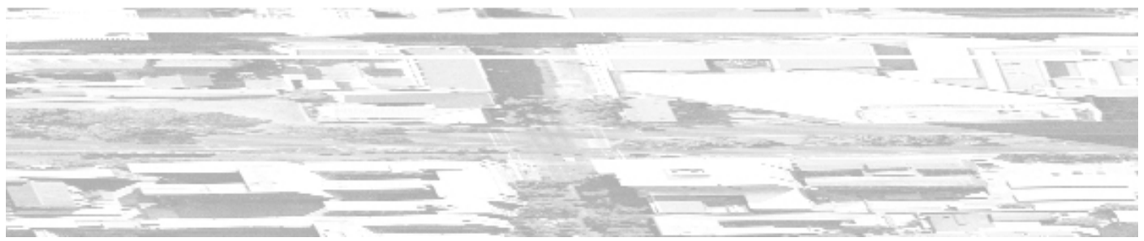
Technical Investigation
- 7.1 Accommodation Schedule 74
- 7.2 Analysis Of Solar Angles 76
- 7.3 Water Drainage 80
- 7.4 Fire Escape Routes 81
- 7.5 Museum Circulation Maps 82

Conclusion 84

Technical Drawings 85

Appendix

References List



List of Figures

Sketch 1.1 *The museum was a container primarily for the preservation of information sources. Secondly for learned gentlemen to access these sources. ..... 10 & 19*
Sketch 1.2 *The museum became a container for the preservation of artefacts. Secondly for learned gentlemen and the general public to access these sources on equal grounds. 10*
Sketch 1.3 The museum concept as a storage house and the art contained within considered as 'specimens'. The visitor was forgotten. 13
Sketch1.4 *The museum became a commercial building where the visitor is considered as important as the artefacts displayed. Museums also promoted display and user interaction. 14*
Sketch 1.6 The audience has in the end become more important than the displayed artefacts. The museum, being a commercial building, primary caters for the visitor and secondly for the displayed artefacts.Ironically this is the exact opposite of what it started as (sketch 1.1). 19

Fig 1.1 The Louvre - Paris. 10
Fig 1.2 Metropolitan Museum of Art – New York 14
Fig 1.3 Centre Pompidou 16
Fig 1.4 Pretoria Art Museum exterior and interior views 20
Fig 1.5 Sainsbury Centre for the visual arts, University of East Anglia, Norwich (England) 22
Fig 1.6 Centre Pompidou 22

Fig 2.1 Above: The Blur Building - exterior view 24
Fig 2.2 Right: The Blur Building - exterior View Concept Render 24
Fig 2.3 Below: The Blur Building - Angel deck 24
Fig 2.4 Above: The Blur Building - exterior view and Braincoats 26
Fig 2.5 Right: The Blur Building - Braincoats changing color to suit compatibility 26
Fig 2.6 Below: ICA Waterfront Museum 2006 26
Fig 2.7 Above: ICA Interior 28
Fig 2.8 Right: ICA Conference hall/ theatre with opaque glazing 28
Fig 2.9 Below: ICA Conference hall/ theatre with translucent glazing 28

Fig 3.1 Virtual Museums 30
Fig 3.2 The Aegis Wall 30
Fig 3.3a The Aegis Wall; Piston System 32
Fig 3.3b The Aegis Wall. An indication of the design's morphable properties 32

Fig 4.1 Interior Picture of the existing Graet Egyptian Museum in Cairo. 34
Fig 4.2 Diagramatic plan of the New Great Egyptian Museum propsed site in context. 34
Fig 4.3a Local area for the site of the New Egyptian Museum. 36
Fig 4.3b Site and contours 36
Fig 4.4 Virtual Model of the site for the new museum with the Giza Pycamids in the background. 36
Fig 4.5 Digital Artefact Assembly 38
Fig 4.6 Linking museums digitally on an international scale 40
Fig 4.7 Egyptian Museum Backbone 40
Fig 4.8 Hyper-Textual Routes 42
Fig 4.9 Competition Winner 2003. New Great Egyptian Museum Concept 43

Fig 5.1 Site indicated on road map 44
Fig 5.2 Museum Park (Tshwane Inner City Programme Spatial Development Framework Presentation) 44
Fig 5.3 Heritage 46
Fig 5.4 Skinner Street as it was before its upgrade 48
Fig 5.5 Skinner street in its current condition 48
Fig 5.6 Skinner Site Degradation 50
Fig 5.7 Skinner Street after intervention 50
Fig 5.8 Collage Of The Signage on site and Street Facades 54
Fig 5.9a Site adjustments 52
Fig 5.9b Site adjustments 52
Fig 5.10a - Fig 5.10w Photographs of proposed Global Museum's site ..... 56 - 62

Fig 6.1 The Global Museum as seen from the proposed Mounted Police Unit Station. 64
Fig 6.2 Concept Models 66
Fig 6.3 Virtual Concept Models 67
Fig 6.4 Building in context 68
Fig 6.5 Museum Interior - Virtual Museum Portal 68
Fig 6.6 Museum Southern Façade 70
Fig 6.7 Museum Western Façade 70
Fig 6.8 Skinner street islands with the Global Museum to the North of Skinner Street. 71
Fig 6.9a Virtual Museum Portal room 72
Fig 6.9c Glass Bridge - Conference Foyer 72
Fig 6.9e Accessible Roof 72
Fig 6.9d Net Restaurant 72
Fig 6.9f South Façade 72
Fig 6.9b Museum Interior – Garden 72

Fig 7.1 Sun Angles of the Global Museum 76
Fig 7.2 South African Sun Angles 76
Fig 7.6a - Fig 7.6c Water Drainage 80
Fig 7.7a - Fig 7.7d Fire Escape Routes 84
Fig 7.8a - Fig 7.8d Museum Circulation Map ..... 82 - 83

Introduction

Scenario

The recent upsurge in the construction of new museum buildings is an important contemporary phenomenon. In recent years every major city has engaged in the creation of some new museum. This has happened for two specific reasons: the renewed interest in global institutional culture and the museum's function in relation to art itself and its comprehension, i.e. what effect the change of the museum has on art and vise versa. (Montaner J and Oliveras J. 1986:7)

It seems to be the responsibility of the contemporary state to establish ideological mediations between art history and treasures, and their enjoyment by the public. Since the Enlightenment the museum has been the institution for public dissemination of culture. The romantic revolution of 1830 to 1868 claimed a direct relationship between knowledge, art and its personal enjoyment.

The consensus of the public organization of culture in museums seems to support demands for the creation of institutions which encourage the coming together of cultural exhibits and new users, but the question arises of how the immaterial commodities relate to the material ones.

Social wellbeing is associated with domestic comfort and social security. It is also associated with a symbolic universe represented by art, travel, science and history. Thus an objective of advanced and advancing societies is to increase access to cultural commodities of mhich the value is deemed to be obsolete. (Ibid:7)

It must also be understood that museums function according to the concept of art and its comprehension. In today's social setting knowledge is no longer exclusive property, but freely available to all.

The architectural form that museum design takes must thus be capable of revealing the sacred content of art, historical documents and other important cultural information to the public.

The architectural organization of space mediates between a multitude of objects, knowledge, documents and their given meaning. (Ibid:7)

Furthermore contemporary museum design creates dynamic and user-interactive displays using state-of-the-art technology and visitor-orientated design principles, and creates information exchange databases that link on global levels to provide free sharing of information.(Great Egyptian Museum Project – Giza:160)

Problematic

Are the display and functional standards of South African museums efficient and appropriate by today's museum design standards?

Enquiry 1

What are the international and contemporary museum standards and how does current South African museum design comply with those standards?

Enquiry 2

How does one create an enjoyable visitor-orientated experience that ultimately satisfies intellectual, cultural, social, recreational, aesthetic and economic needs?

Enquiry 3

What is appropriate architecture and tectonics when dealing with the interface between the displayed digital information and the viewer? What acceptable and affordable (yet groundbreaking and norm-setting) available technology exists and how can the efficient dissemination of information be achieved?

Enquiry 4

How does one create an interactive and dynamic museum display? What related Information Technology (I.T.) problems are integrated through architectural solutions aimed at establishing information databases and free information sharing with museum visitors and other global museum institutions?

Task

The task is then to design a visitor-orientated museum using contemporary museum design models and state-of-the-art display technologies and link them with other international museum organizations so as to put Pretoria on the global museum map. Such a facility will also provide the people of Pretoria with a wealth of freely available and accredited information from local, national and international sources, as well as recreation and enjoyment. The museum could fit into the existing urban fabric, to contribute to the city's cultural and economic status.

The Global Museum could then be a building tying museum-related information[1] into a contemporary visitor-orientated display using digital and cyberspace technology to allow both dynamic and visitor-specific displays, allowing each individual visitor to be a curator for his/her own cultural landscape.

The museum should focus on commercial, recreational, and visitor enjoyment activities to promote museum popularity and privatize/de-politicize the museum.

The museum should also cater for mass-information availability, interactive visitor experience and social functions as well as any personal agenda the visitor might have that would lead to a museum activity a person would take for granted. (Falk H. and Dierking LD. 1990)

"The visitor's personal context is perhaps the single greatest influence on the visitors museum experience … is important for museum professionals to understand the significance of visitors' agendas, and to recognize that they can be manipulated by the museum"

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A architectural problem we are faced with today is the integration of physical and virtual space with the medium through which people view and perceive the digital. While databases, information networks and internet-related information sources are primarily Information Technology (IT) problems, the interface/medium between these and humans are architectural in nature.

Proposal

Global Museum

The design proposal is the combination of the new functions of a digital/electronic display surface and the symbolic space of our time; and the constant evolution of the digital world.

The exhibition becomes a shell for the other functions of the building.

1. Artifact, animal, human cradle, art, history, context, culture, economy, general, etc.

These spaces need not represent traditional ornamental, symmetrical or geometrical architecture neither should they be blobs, meshes and deconstructions created by mouse, keyboard and visual computer software. Rather the use of soft contours as a metaphor for the quality of computer driven representations and systems should be incorporated. (Manovich L,2006:1-2)

Furthermore the building should not be a monumental and overpowering symbol as so many of its predecessors are, but rather it should be humble and on a human scale.

The main literature sources used in this project

MONTANER J and OLIVERAS J. *The Museum Of The Last Generation,* 1986, Academy Editions, London

SCHUBERT K. *The Curators Egg* - the revolution of the museum concept from the French revolution to the present day, 2000, One-off Press, London

- The way museums are designed today is the product of an ever-changing design model, in all aspects, of museum development since the British Museum (the first independent museum in the world) was founded in 1759 to the present day. A main focus of study would be specifically of what major shifts occurred in museum design and why changes were made. This study is also required to determine the next logical step in museum evolution following the contemporary design trends of museums.

LEACH N., 2002, *Designing For A Digital World*, Wiley-Academy, In association with RIBA Future Studies, Great Britain.

- A great architectural problems we are faced with today is the integration of physical and virtual space and the medium through which people view and perceive the digital (as metioned above). The study will include Digital Culture, current digital design trends, and how digital design influences the physical in both the architectural and engineering fields, and vise versa.

FALK JH. and DIERKING LD. *The Museum Experience,* 1994, Whalesback Books, Washington, D.C

- The visitor's perspective has come to play an ever more important role in museum design. The purpose of this study will be to understand the museum experience from a visitor's personal point of view, visitor expectations and how the visitor's personal background would impact on his experience of the museum building. This study aims to create a space that both appeals to and fools the senses without alienating the visitor, while still providing a maximum amount of entertainment. This study includes an investigation of the visitor's personal, social and physical context. (This section is in Appendix a)

THE ARAB REPUBLIC OF EGYPT, MINISTRY OF CULTURE and THE SUPREME COUNCIL OF ANTIQUES. *The Great Egyptian Museum Project* – GIZA, International architecture competition architectural brief and competition rules.

- This study investigates the concepts of museum globalization and the design of a museum for the third millennium. It comprises the integration of Modularity, Theme, Dynamics and Networking. The aim is to create a museum that reflects cultural ideals and today's social needs, as well as the visitor's relationship with the exhibit.

Problem Statement

Precedent Studies

Precedents that focuses on one or more of the following has been included in this study:

- Innovative museum display for visitor entertainment
- Museums that satisfy specific social or cultural needs
- The use of digital display methods and physical-virtual integrated displays
- Dynamic buildings
- Sustainable, controlled environments

Structure of this document

This study starts with the museum's history. Throughout this section the different museum models and ideals are identified. Following this museum concepts that had a big impact on the concept of the museum and its place in a contemporary world are investigated.

Furthermore I delved into Digital Culture and digital means of information sharing. Throughout this section of the document the written work is studied and inserted in italics points of interest that will guide the desicions make.

The next section is a case study of the Great Egyptian Museum Competition Brief as an example of a contemporary museum to understand its objectives of the museum and what it has become. This section includes the combination of the museum model identivied within the first sections and Digital Culture investigated in the latter.

After these enquiries the document structure changes. The project is stied to place it within context and the building function, theory and accommodation schedule is stipulated, followed by the technical investigation and a conclusion.

Client

A client[1] could possibly require a museum within Pretoria's inner city that should ultimately be a state-of-the-art complex and provide access to a wealth of information and 'future' knowledge to the city. The building should use contemporary digital technology to create the effective and efficient dissemination of information. The museum should foster cultural awareness and contribute to the tourism industry. (Great Egyptian Museum Project – Giza:)

1. Possible clients include Guggenheim, Dimension Data (Jeremy Ord), IT Solutions (Ronnie Apteker), and The Supreme Council of Antiques. These clients are all commercially driven and not government driven to avoid museum political exploitation.

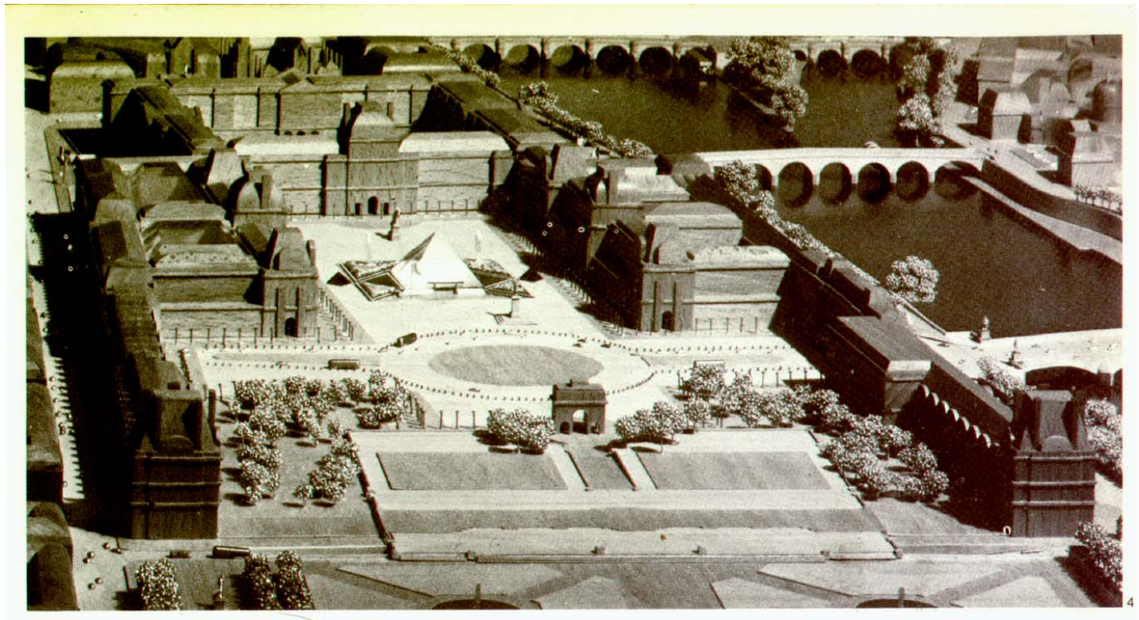


Fig 1.1 The Louvre - Paris. The first museum to have been opened to the public after the fall of the Monarchy on August 10, 1792
(Montaner J and Oliveras J. 1986)

Sketch 1.1
Firstly, the museum was a container primarily for the preservation of information sources, and secondly, for learned gentlemen to access these sources.

Sketch 1.2
The museum became firstly a container for the preservation of artefacts, and secondly for learned gentlemen and the general public to access its sources on equal grounds.

1. The history of museum development

1.1 Defining the museum

In order to design a museum one must first be able to define a museum. This is extremely difficult due to the morphing nature of the museum model. Thus this study of the museum starts with a look into the history of the museum in order to understand how and why its concept and model changed.

The passion of the collector and the acquisition of rare, unique, extraordinary and valuable objects have existed since ancient times, though museums date back only about two centuries.
During the enlightenment the phenomenon arose of the museum as public space and this included knowledge of the possession of a collection of objects.
The first museums were seen as temples to art. Later they became laboratories of classification and ordered taxonomies, retrospectives colored by the flow of time, or more simply cultural spectacle for the masses.
Two questions concerning the architecture of a museum arised:
1. In architecture, is the production of a suitable vehicle for the interpretation of art and the relationship between the wholly world of precious objects and its perception by society, specific to the museum and is it developing at the present time?
2. Within the contemporary urban culture, can museums be capable of creating the physical space and symbolic surroundings in which collective life develops? (Montaner J and Oliveras J. 1986:7-13)

1.2 Museum development

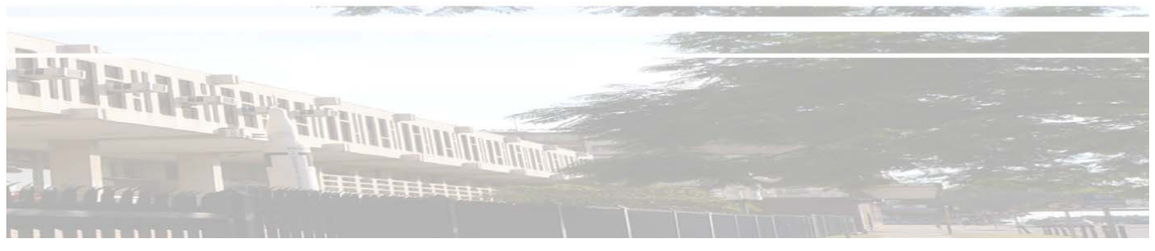
The museum concept is said to have started with the British Museum in 1759, which was primarily a semi-public reference collection of books and manuscripts. It was a place for learned gentlemen and was closed to the eyes of the general public by rules of the court protocol. After public access was granted, groups of visitors were led rapidly by staff on specific paths, thus controlling the information granted to the public. There were visitor complaints. (Schubert K. 2000:17)

Thus the museum was seen as an end in itself with its focus on the information inside, and not as a facility to serve visitors. (sketch 1.1)

Then there came the Louvre in Paris (Fig 1.1), a palace of the Kings of France, which held extensive royal collections. Changes to painting displays were made and artists worked at length to make exhibitions more acceptable and create an appropriate curatorial concept for the museum. The formal royal palace was turned into a public museum nine days after the fall of the monarchy on August 10, 1792. (Ibid:18)

The museum was seen as a symbol of revolutionary achievement and served many visitors rather than only aristocrats and learned gentlemen. (sketch 1.2)

“Past class and evolutionary barriers were swept aside”
- (Schubert K. 2000:18)
Jean-Jacques David argued that museums should not only house luxury objects on display to satisfy curiosity. Napoleon’s conquests led to the rapid growth of the Louvre exhibition. In January 1794, after the Conservatoire came to power, museum displays were brought more in line with revolutionary goals; this even included the removal of paintings that were considered by the revolution as ‘unsuitable’ and religious and ideological interpretations were replaced with aesthetic and art-historical readings. (Ibid:19-20)



It is apparent that the museum concept continued switching between different subjective opinions.

Sir David Wilson, British Museum director in 1889, argued that the purpose of a museum is to hold its material in trust for humankind. In the same year it was said that the conquest brought to France everything to empower the imagination. The Raphael paintings Dominique-Vivant Denon installed in the Louvre were chosen to show at a glance the artist's genius. He created in a way a one-wall retrospective of Raphael's career from beginning to end. With Denon's exhibition pedagogic aims and art-historical methodology had for the first time played a central role in artwork displays. (Ibid:20-21)

The museum concept becomes one of conservation. This created a shift from a political-ideological to an historical-documentary agenda. The above also shows how the curator's subjective opinion can affect an artist's (In this case Raphael's) image as seen by the public.

The British Museum, which had developed at the same time as the Louvre, was not as 'royal' in its ecclesiastical or aristocratic collections, yet both came into existence as a result of changing social circumstances and to satisfy specific cultural needs. For the English, the idea of using an institution that came from their interpretation of the fresh catastrophe was hard to embrace, yet the museum concept caught their imagination. It tied in with the non-aristocratic elite and cultural aspirations of the Industrial Revolution. (Ibid:22)

The museum was thus depoliticized, emphasizing educational and scientific potential.

The museum's revolutionary origins were soon sidelined by the great potential museums had to play in the emerging rivalries between European nation states. Both the British Museum and the Louvre became symbols of imperialistic domination and global domination. Cultural sites were globally 'raided' for archeological objects, thus presenting their political masters as custodians of world culture. (Ibid:23)

The museum becomes a symbol of current cultural situations.

At this point the imperialization of the museum began. In 1826 and 1834 the mutual cycle of the Egyptian galleries was a celebration of French cultural superiority in the Louvre. It linked Egyptian history to the nouveau Bourbon dynasty to claim continuity and stability. Once again quite disconnected political and scholarly goals coexisted. The British Museum , with a 19th century curator, had a Darwinist approach which considered all art as just a stepping stone towards the pinnacle of Greek classicism, and ultimately considered the museum as a storage facility. (Ibid:24)

Aesthetic considerations no longer mattered. Art was only a way of measuring deviation. British museum displays were contained in dark and cluttered interiors and the museum had overcrowded, inadequate storerooms. There was no display-visitor interaction. As a result the 19th century museum focused on chronology and completeness of display pieces. These conditions continued escalating untill the 1880s when exhibitions started to thin out and artworks were once again considered more than 'specimens' even though the emphasis was still on historical evidence rather than aesthetics. (Ibid:25-26)

From this point on the start of the global museum concept can be seen as art from different international locations were exhibited within the same location.

In 1914 the arrival and full emancipation of Asian art contributed to African, Indian and South American art

Sketch 1.3 The museum became a storage house and the art pieces contained within were considered as 'specimens.' Visitor orientated museum design was forgotten.

to finally be exhibited in the British Museum instead of at off-site galleries. Global art acceptance evolved. The cessation of the flow of world artifacts into European museums changed their function to scholarship and display rather than acquisition and expansion, but still little was done to create visitor-friendly displays. In 1882, John Russel Pope's design for the Duveen Gallery displayed the Parthenon sculptures for the first time not as 'specimens', but as works of art, and any comparative materials were removed and exhibited in side rooms. From this time onwards museums evolved from exclusive scholarly places to aesthetic-educational ones.
It was obvious that museum curators will allways be subjective and was at this time still influenced by political and social factors. Only much later did self-analysis and critique become part of museum practice. (Ibid:26-28)

Political and socio-cultural creation and destruction of museums
A political and cultural aggrandizement took off in Germany with the proclamation of the German Empire in 1871. A new assistant curator, Wilhelm Bode, was appointed to the Prussian State Museums in Berlin. Bode managed to acquire a wealth of paintings and artifacts, and facilitated groundbreaking research on the image of Rembrandt. The arrival of important artifacts like the Pergamon Altar in 1878 became of national importance and excavation sites led to benchmarks in archeological standards and technologies. A major contribution Bode made to the Berlin museums was the wide scope of international civilizations that were represented within the German capital. More than this, Bode had designed a groundbreaking display method which grouped objects according to historical content instead of object type (paintings with paintings, sculptures with sculptures, etc.) (Ibid:29-31)

The museum concept became the cataloguing of information within its context. So far, throughout this museum development, most changes to museums were either because of the way information was exhibited, or the changes led to a new way of exhibiting.

In this way objects from different categories complemented each other instead of competing with each other, and this approach was copied by curators all over the world. New meaningful and informative displays were created that did not neglect the aesthetic qualities of the artefacts. The Victorian gloom and overcrowdedness in the British Museum gave way to Bauhaus-like clarity, simplicity and sparseness. Neutral space without decoration housed the galleries. (Ibid:31)

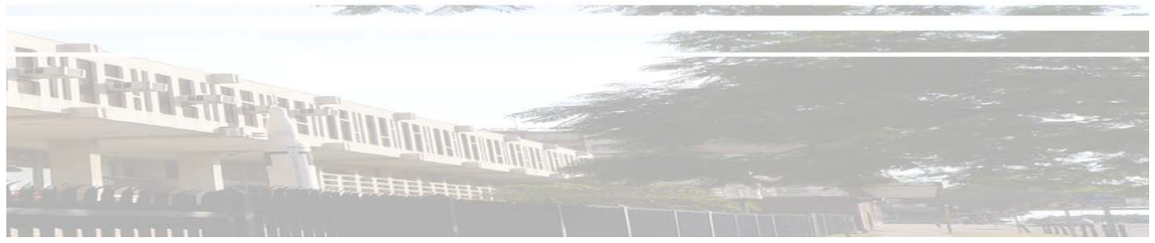


Fig 1.2 Metropolitan Museum of Art – New York (http://www.nyc-architecture.com/UES/UES074.htm)

Sketch1.5 (above)
The museum became a commercial building where the visitor is considered as important as the artefacts displayed. Museums also promoted display and user interaction.

Fig 1.2 (left) Metropolitan Museum of Art Interior (http://www.nyc-architecture.com/UES/UES074.htm)

From the above can be seen that neutral display areas without decoration were created to house exhibitions. The artefacts were perhaps viewed more objectively even though the displays were still the product of a curator.

Directors appointed by Bode and the Berlin museum created an influential model for curators, and their methods and techniques spread worldwide. Their reputations became based on standard-setting scholarship grounded in logic and open-minded liberalism. Sadly, the rise of Nazism brought these advances to an abrupt end. (Ibid:33-34)

The museum is then crippled by social and cultural change, even though it had been the product of these changes.

Hitler and his acolytes removal of all Impressionist paintings to the Nationalgalerie and emphasis was placed entirely on Post-Impressionist, Cubist and Expressionist works. The museums cooperated in the task of shaping an amorphous mass of population. (Ibid:34)

Thus museum circumstances changed according to cultural changes in these times and was used as a tool to attempt to shape a new culture. This is an excellent example of the power of the museum to influence people's perceptions.

Art removal and control of display escalated and a great deal of art was even destroyed. Museums contained only Nazi-approved art. The Berlin Museum's Island became part of the Nazis' last line of defense in the war and suffered devastating destruction. The image emerged of the museum as vulnerable and requiring special protection. (Ibid:35-38)

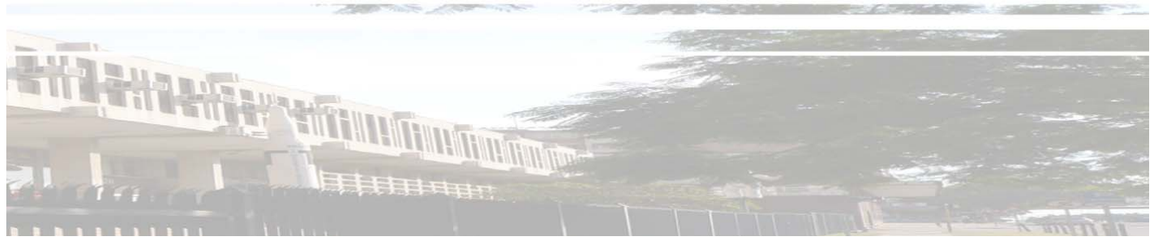
These museums were so easily affected by politics primarily because they were born out of politics. Through this process the visitor perhaps remained immune to the manipulation.

1.3 Museum of Modern Art (Fig 1.2)
American museums differed from European ones in that they were neither instruments of revolution or imperialism, nor had political or social agendas. They were more civically minded and nationalistic with the emphasis on education. They were also funded by private individuals and soon developed into art markets, though this raised questions of national heritage loss for England. (Ibid:39)

The museum was primarily seen as an educational and commercial facility. Private funding meant that the museum was also for the first time not under political influences. (sketch 1.5)

Valentiner, a former student of Bode, developed his master's ideas in New York by recreating entire period settings. These reconstructions blurred the lines between 'faithful representation' and 'invention'. Museums offered insight into display context.The museum's concept of power once again reared its head with the Duveen Gallery at the Tate in London, which by virtue of its scale totally overwhelmed the artworks. It was far too monumental in its scale and its space competed with the sculptures for attention. The architecture was meant to impress, seduce and overwhelm. (Ibid:39-42)

These American museums were too big, powerful and monumental by international standards, and was believed to be out of touch with American culture by the author. It is perhaps ironic that these privately funded museums became even more monumental that the political museums.



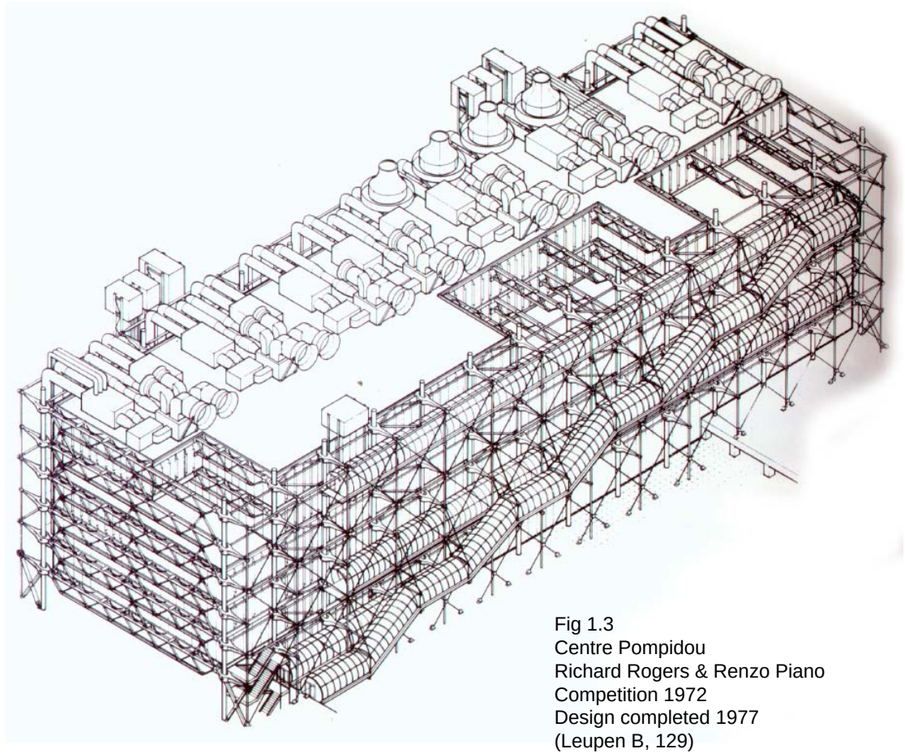
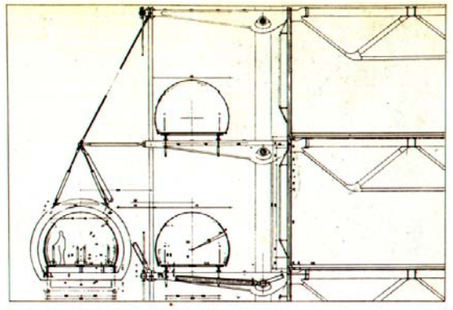
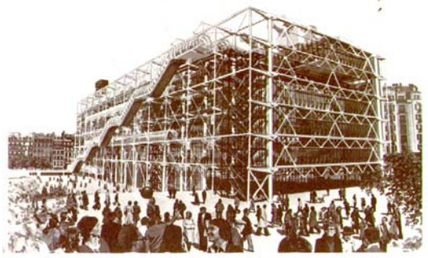
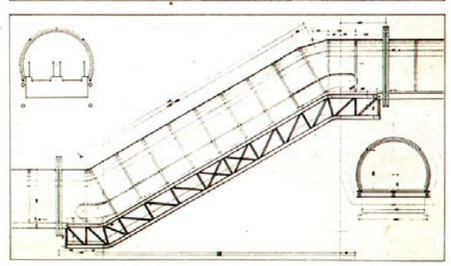
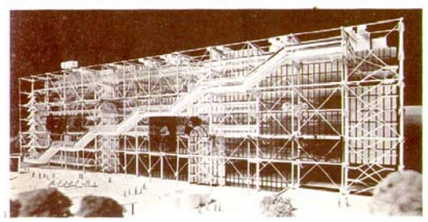


Fig 1.3
Centre Pompidou
Richard Rogers & Renzo Piano
Competition 1972
Design completed 1977
(Leupen B, 129)









America searched for a new architectural language that expressed its ideals and aspirations as dictated both by aesthetics and by politics, and found it in the International Style. Museums dedicated to modern art did not have to answer to European precedents and had to follow neither format nor history. Thus the American Museum for Modern Art (1930) was the New World's truly authentic contribution to the history of the museum. MoMA was located in an office building and later gained the addition of a Guggenheim museum. The museum as a laboratory appears for the first time to invite the audience to participate. MoMA incorporated the use of different visual media (photography, architecture, film, industrial design and all other aspects of contemporary visual culture). (Ibid:44-45)

"It was normative in its pronouncements, not to say dogmatic, and to this day inclusion in its collections is considered a great accolade"
– (Schubert K. 2000:45)

With the development of better wall labels, comprehensive catalogues, extensive lecture programs and guided tours the first movements towards visitor-orientated museum design could be seen. MoMA sent touring exhibitions across the country. In the beginning MoMA relied heavily on loans and had a program of constantly changing exhibitions. Only after 1934 did it focus increasingly on permanent exhibitions. Questions of collaboration with other museums were suppressed by pride of ownership and donors' wishes preventing change. By late 1950 the museum started to be bombarded by younger generation artists claiming that it was too conservative. (Ibid:46-50)

1.4 European Museums After the War

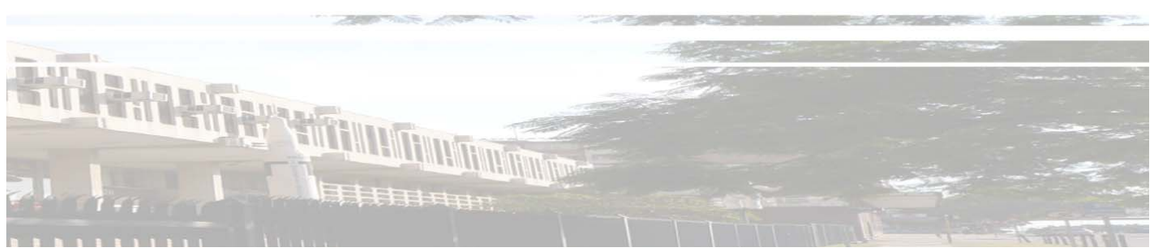
The war showed the vulnerability of museums to both physical and political destruction. European museums were seen as outmoded bastions that were politically opportunistic and fixated on the past. They were dusty, unloved, dowdy, worn out, underlit, cold, dirty, unimaginative and too often associated with the war. (Ibid:52-53)

The end of the war started a change in museum designs. From this point on it can be seen that the museum breaks from the past museum concepts and political manipulation.

This outdated image of the museum had to be broken and this was finally done by the Wallraf-Richartz Museum in Cologne (1958) which was un-monumental and self-effacing. Symbols of cultural superiority and political power were avoided at all costs. A glass façade signalled openness and freedom from hidden ideological or political agendas. Museums of the 1960s played a minor role in recording post-war society, thus they operated completely differently from the past now that their unquestioned supremacy was removed. Museums were of little importance to post-war society and were left out of cultural battles, while society focused on other institutions like universities. Art lost much of its importance after the war. It is thus ironic that only two decades later the museum's fortunes would change so dramatically. (Ibid:53-55)

1.5 The Pompidou Centre (Fig 1.3)

There were massive changes in European museums due to post-war reconstruction and economic recovery, which led to spare cash being made available for the long neglected museums. The arrival of mass tourism in the 1970s thanks to the development of the Boeing 747 which provided cheap mass travel was also a contributing factor. Another influence on museum changes was the 1960s cultural changes that put 'Power' in all its manifestations under intense scrutiny, questioning its motivations and intensions. It seemed that although the museum was a symbol of cultural and normative power it escaped post-war



reform. Definitions of museums about display and science which went unquestioned for so many years finally came under the spotlight, along with questions about museum accessibility and objectivity. Before this period curatorial practice was seldom questioned, but was now viewed with great suspicion. Museums no longer seemed to provide an end result to visitors, but rather exposed the process creating self-conscious awareness. Museums became aware of their greatest powers and weaknesses. They lost their past authority, but gained reflection on their own nature. (Ibid:56-61)

With the Pompidou Centre it can be seen that the museum definition finally changed and became democratic, transparent and accountable. Thus this museum can be seen to have succeeded in breaking totally from political monumentality.

What set the Pompidou Centre (the result of a 1970s architectural competition) apart from all the previous museum institutions was that it was privately funded and purposely avoided established political and institutional channels. It spoke a language similar to Barr's half-century-old phrase describing the museum as a laboratory with the visitors as participants in the experiment, and as a truly interdisciplinary institution. The new Pompidou Centre had free access instead of the normal forced special entrance. The visitor was thus allowed to go anywhere instead of being forced into a guided story. The new building was flexible and adaptable. All exhibitions were temporary and thus constantly renewed with an ever-changing interior. This ultimately invoked a more lucid definition of culture.
Another crucial difference between the Pompidou and its predecessors was that it was designed for the average man (an audience previously uninterested and dismissed). Individual institutions were allowed a wider range of readings on their collections and to develop their own styles, identities in their collection scopes, interpretations, and display techniques.
The flexibility of the museum was both its greatest success and greatest burden. The museum's great success resulted in a very noisy interior. Paintings and sculptures could not be displayed to their full effect with the interior dry-walling system. The Centre was also way too high-maintenance and soon had to incorporate static displays to overcome the problem. (Ibid:56-61)

"The Pompidou was an all-out attempt at coming to terms with the emerging post-modern culture by modernist means"
– (Schubert K. 2000:60)

Sketch 1.6
The audience has in the end become more important than the displayed artefacts. The museum, being a commercial building, primary caters for the visitor and secondly for the displayed artefacts.Ironically this is in contrast to what it started as (sketch 1.2).

Sketch 1.2
The museum became firstly a container for the preservation of artefacts, and secondly for learned gentlemen and the general public to access its sources on equal grounds.

Museum architectural typologies are subjected to an inevitable process of change and historical evolution. Museums containing only exhibition spaces have become less satisfying and have changed into places more involved with work, learning and study facilitating greater human interaction. Accommodation has changd from permanent exhibition spaces to temporary exhibitions with accessible storage for research and large open public work spaces. New museum functions include facilities to satisfy human needs (restaurants, cafeterias, reproduction sales and other retail functions), incorporating a commercial logic in the process.

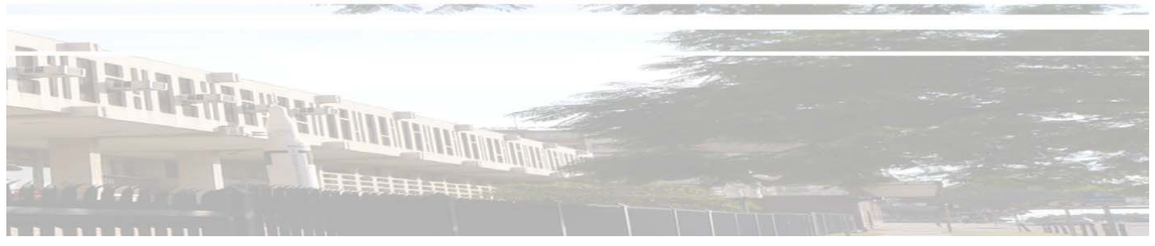


Fig 1.4 Pretoria Art Museum exterior and interior views

1.6 South African Museums

Now that a study has been done of historic and current definitions of the museum, it is important to see how the museums of South Africa are defined. Since the project study is mainly focused on Pretoria the study of South African museums will be done through personal experience based upon visiting the museums in Pretoria. Personal experience is relevant because this study have identified in the first part of this section that the museums of the future should ultimately focus on South African Museums.

1.6.1 The Pretoria Art Museum

The first thing noticed concerning the Pretoria Art Museum -as on all other visits to the various museums- was the absence of an audience. During the entire trip to the art museum (which lasted four hours) the only other visitors in the museum were the people who accompanied me.

Inside, the museum consists of a series of exhibition spaces which was visited in a specific order to view the art displayed there, organized both by artist and style. One of the exhibitions contained artworks for sale. The souvenir shop was closed. The museum was filled with labels that order viewers not to touch the displays. Permission from museum security had to be granted before one could take pictures. Each artwork is accompanied by a name tag with the names of the artwork, artist, and some general information.

The aesthetics of the interior spaces were perceived to be mainly the result of a technical investigation to preserve the artworks displayed from heat and intense lighting, while allowing for enough lighting to make the artworks clearly visible. The display rooms contain no excessive decoration, and this puts all the focus on the displayed artworks. Inside the display areas the outside world and the other displays within the building are totally cut off from view. It happened at least twice while walking along the display that we struggled to figure out where we had wandered to.

The first troubling thing noticed with most of the South African Museums is that there are no visitors to these facilities. The museum seems to follow many of the concepts identified in section 1.1-1.5. These are however not seen as contemporary museum concepts by today's standards and many of the contemporary museum concepts were not present within the Pretoria Art Museum.

In the following chapter cases where museums exibited ground breaking ideas that led to a change in the way the museum develops. These museums and pavilions all use commercial logic and are visitor orientated, because these two aspects are predicted by this study to dominate the future of museum design.

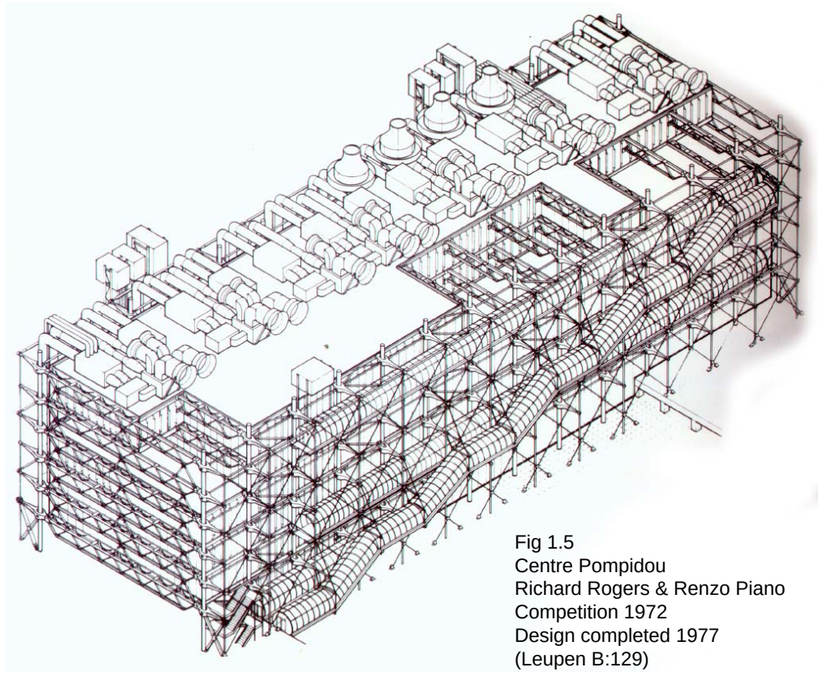


Fig 1.5
Centre Pompidou
Richard Rogers & Renzo Piano
Competition 1972
Design completed 1977
(Leupen B:129)

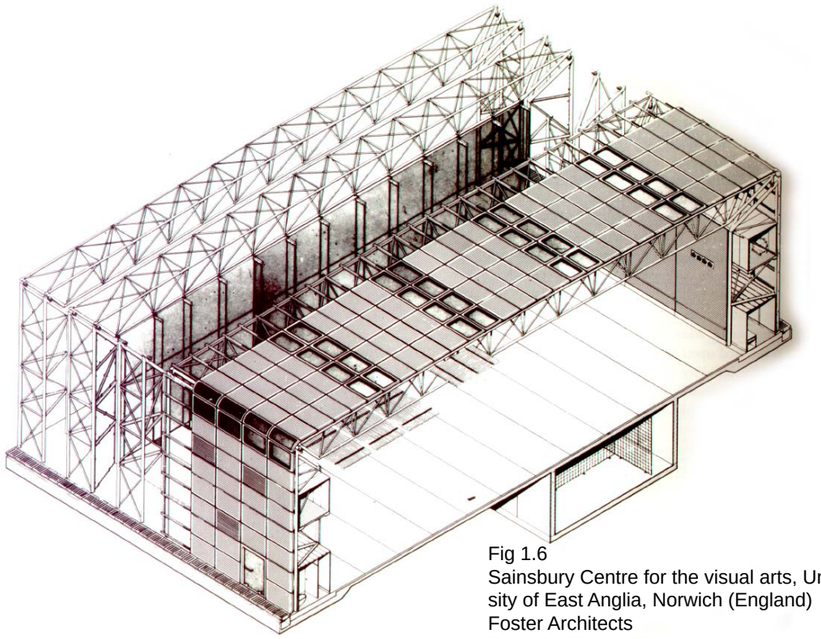


Fig 1.6
Sainsbury Centre for the visual arts, University of East Anglia, Norwich (England)
Foster Architects
Project 1974 – 1976
Construction 1976 – 1977 (Montaner:52)

2. Precedent Studies

2.1 Dynamic Containers

2.1.1 The Pompidou Centre (Fig 1.3)

All services are draped on the exterior giving visitors a glimpse of the building's function and using this function as decoration. The building is an iconoclastic and innovative alternative to the traditional serious idea of culture, thus technology and science brought about the aesthetic.
This new cultural centre adopted forms that contributed to flexibility and dynamics, thus creating a flexible interior (and exterior) that caters for developing technical systems and a shifting program.

The author considers the Pompidou Centre to be the museum that had the biggest influence on the future of museum design, because it broke all the rules followed be its predecessors. It was undiscriminatingly centered on humanity. The focus of the building was on dynamics instead of artefact preservation, and its aesthetics was based on functionality and structure rather than monumentality. To this day parts of the Pompidou Centre are still evolving constantly and exist not only as landmarks for museum design, but also for design philosophy.

2.1.2 Sainsbury Centre (Fig 1.4)

All functions of the Sainsbury Centre are located under one environmentally-controlled structure, formed by a series of tri-dimensional frames that ultimately creates the best example of the museum building-container. As with the Pompidou Centre, the Sainsbury Centre contains a completely flexible exhibition space. Though completely flexible it does not expose services as at the Pompidou Centre, but rather 'sandwiches' functional elements within external aluminium panels. The building incorporates a modular proportion system and a minimalist idea of built form. All services encased within the 'shed' allows for a freely sub-divisible internal expanse, thus maximizing the dynamic internal layout.

As with the Pompidou Centre the Sainsbury Centre breaks away from monumental design with its minimalist tectonics. Both these buildings are famous for their ability to change and adapt to future conditions. This quality, though now an old concept, should be incorporated into the design of the proposed Global Museum due to its effectiveness. The dynamics should however be innovative and taken one step further than the examples discussed.

Fig 2.1 Above: The Blur Building
- exterior view

Fig 2.2 Right: The Blur Building
- exterior View Concept Render

Fig 2.3 Below: The Blur Building
- Angel deck

(http://www.arcspace.com/architects/DillerScofidio/aberrant_architecture_25-04-2006)

2.2 People Containers
2.2.1 The Blur Building 2002 - Lake Neuchatel in Yverdon-les-Bains, Switzerland (Fig 2.1)

This building focused mainly on artifacts, computer drawings and video. The building looked like a massive white cloud floating on a lake and was constructed of a steel frame housing 13 000 fog nozzles. (Kiser K.2002,http://www.archspace.com)
“It was an exhibition pavilion with nothing on display, except for our cultural dependency on vision,” - Elizabeth Diller. (http://www.archspace.com)
Ramps and walkways wove through a system of diagonal rod cantilevers together providing counterweights to the structure. The cloud created through the structure was controlled by a built-in weather station that responded to changing weather conditions. (Ibid)

The Blur Building thus gets rid of the object and places all its focus on the human experience. The structure, hidden in a cloud, becomes invisible, which is the exact opposite of the Pompidou Centre. A cloud also symbolises an ever changing object not bound by material rules or gravity.

Visitors were given braincoats (smart raincoats) (Fig 2.4) to protect them from the harsh weather and provide communication with the computer network. Each visitor’s location could be identified and their character profiles could be compared with each other. The coats changed color (Fig2.6) when visitors moved close to each other to indicate the attraction or repulsion of their profiles.
An inner six-sided glass box offered visitors a sense of total suspension as if they were floating on a cloud. The building summit housed the angel bar (Fig 2.3), which resembled a sense of flight as it sat on top of the cloud. (Ibid)

At the angel bar a range of municipal waters, bottled waters and glacial waters were available.
At night the fog functioned as a giant video screen. (Ibid)

This is an excellent example of the way the visitor has become the main focus of the museum as was identified in the first section of this document (sketch1.6). In this example the visitor becomes so important that the artefacts disappear and the visitor becomes the display. It is no longer a question of how the visitor interacts with the display, but rather how the visitor interacts with the visitor...

Fig 2.4 Above: The Blur Building - exterior view and Braincoats

Fig 2.5 Right: The Blur Building - Braincoats changing color to suit compatibility

Fig 2.6 Below: ICA Waterfront Museum 2006

(http://www.arcspace.com/architects/DillerScofidio/aberrant_archite 25-04-2006)

2.2.2 ICA Waterfront Museum 2006 (Fig 2.6)

"The design of the ICA negotiates between two competing objectives: to perform as a dynamic civic building filled with public and social activities, and as a contemplative space providing individual visitors with intimate experiences with contemporary art. The "public" building is built from the ground up; the "intimate" building, from the sky down."
- Elizabeth Diller
(Kiser K.2002,http://www.arcspace.com/architects/DillerScofidio/ICA/)

The function of the ICA Waterfront Museum is to triple the current available exhibition space of the waterfront and serve as a centre for performance arts and education, and to provide waterfront. access. The building blurs the distinction between its floors, walls, doors and ceiling. (Kiser K.2002)

The galleries are column-free and contain glass planking featuring moveable walls and an adjustable skylight system. The entire north-facing façade of the main exhibition space consists of glass that, when viewed from an angle, blocks vision but allows vision when viewed from a perpendicular direction (Fig 2.7). In the theatre, the translucency of the glas can be changed to meet performance needs (Fig2.8 & Fig2.9). (Ibid)

"A vertically stepped-out space suspended from the underside of a cantilevered fourth floor serves as a digital media center. Equipped with computer stations for accessing digital artworks, digital education and interpretative materials and the Internet".
- (http://www.arcspace.com/architects/DillerScofidio/ICA/, 25-04-2006)

The building facilities include a lobby, workshops and classrooms, spaces for creating digital works of art as well as traditional media, a bookstore, a two-story education centre, a stage and a backstage, dressing rooms, carpentry shops and wardrobe, restrooms, administration offices and a restaurant. (Ibid)

Fig 2.7 Above: ICA Interior

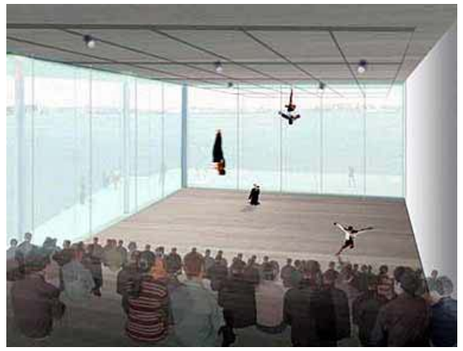


Fig 2.8 Right: ICA Conference hall/ theatre with opaque glazing

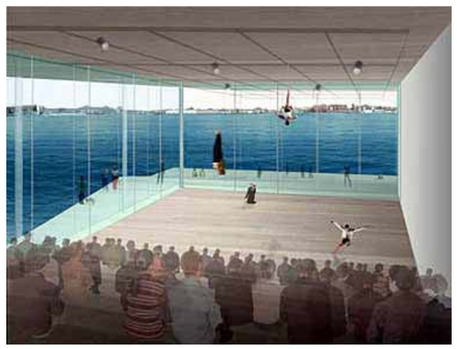


Fig 2.9 Below: ICA Conference hall/ theatre with translucent glazing

(http://www.arcspace.com/architects/DillerScofidio/aberrant_archite 25-04-2006)

Firstly what fascinates me about the ICA Waterfront Museum is like the Blur Building it plays with glazing and with human vision placing the focus on human experience. It plays with the contrast between what is transparent and what is not, fusing the two opposing ideas by crating a glazing facade that both is and is not transparent. Because this transparency changes with the location of the viewer, it allows the viewer some control about what he can and cannot see.

Secondly in the design of the ICA building and its construction computer aided design becomes apparent. The building has massive cantilevers and the top part of the museum was claimed to be designed from the sky down. Computer aided design allows for intricate and complex structures to be constructed with great accuracy.

Thirdly, the ICA Waterfront Museum embraces digital technology, making it the primary function of the museum. This is where the dynamic power of the ICA originates, because the digital provides a dynamic way of acquiring information.

By examining digital culture, the next section of this document will look at the possibilities the digital provides in terms of the human experience. This section will be important when taking into consideration the growth of digital technologies in museum facilities.

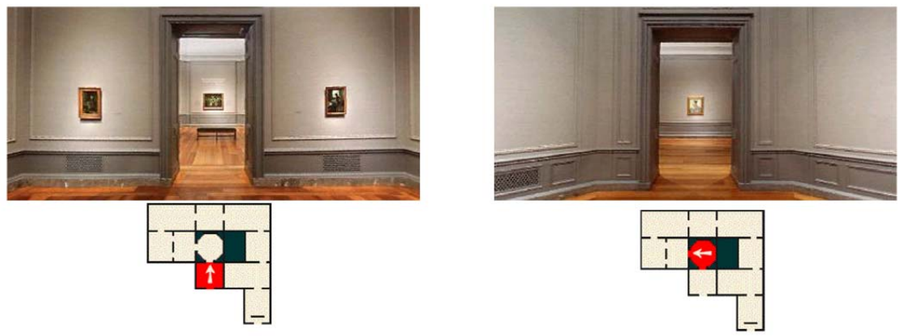


Fig 3.1
Virtual Museums
(http://www.nga.gov/exhibitions/)

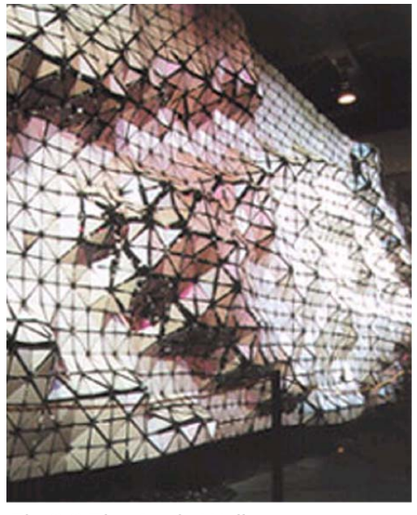


Fig 3.2 The Aegis Wall.
(www.dj.ru/files/gallery/33/740_30.jpg)

Digital Realm

3. Digital Realm

3.1 A brief introduction to Digital Culture

The question concerning global computer networks is whether they are being built to meet the needs of science and technology without sufficiently including the needs of arts and culture. To formulate an answer, subdivisions of digital culture can be identified as follows: The semantic web, virtual and imaginary museums, virtual reference rooms, reconstructions and augmented culture. Networks can be employed as a possible means of addressing these issues. (Veltman KH, Developments and Challenges in Digital Culture.2001:1)

3.2.1 Virtual and imaginary Museums

By 2001, more than 8000 virtual museums existed in Italy alone and they still only show a very small percentage of what is available in museums themselves. The exhibition sizes of virtual museums are limited by bandwidth, while the exhibition size of real museums are limited by floor area. The good thing about virtual museums is that they are accessible to anyone who has an internet connection, no matter where they are in the world, but the down side is that one loses the context in which the museum exists (site, area, country, history and contextual culture).
Vector graphics allows for museum reconstruction in virtual space, but these are artificial, are sometimes not updated regularly with museum changes, or contain incorrect museum information. (Ibid:3-5)

3.2.1 Virtual reference rooms

A virtual reference room can be seen as the search engine of the collective memory of mankind. It is a challenge to distinguishing between local, regional, national and global information/knowledge and generic information without a clear provenance. (Ibid:5)

3.2.2 Reconstructions

The idea of reconstructions is to digitally reconstruct cultural monuments and archeological sites in vector graphics for preservation without deterioration. Recent reconstruction projects tend to be resource intensive (in terms of RAM, disk space and program usage). The largest reconstructions today involve recreating the earth through the use of satellite images.
The question arises wether such a reconstruction of a cultural site a good substitute for visiting the physical landforms where degradation and aging is part of the cultural object? (Ibid:5-6)

3.2.3 Networks

In 1989 UNESCO and the Council of Europe established Networks for Cultural Development and a Cultural Information and Research Centers Liaison in Europe, along with a Cultural Heritage and Development Action Network. Digital networks are used by different organizations to correlate and combine all cultural data and information.
Networks can be established within individual countries and then linked to larger networks on a bigger scale without losing a sense of the local cultural scale which is sought through the network layers. In this way a Cultural Information Matrix takes shape. (Ibid:8-10)

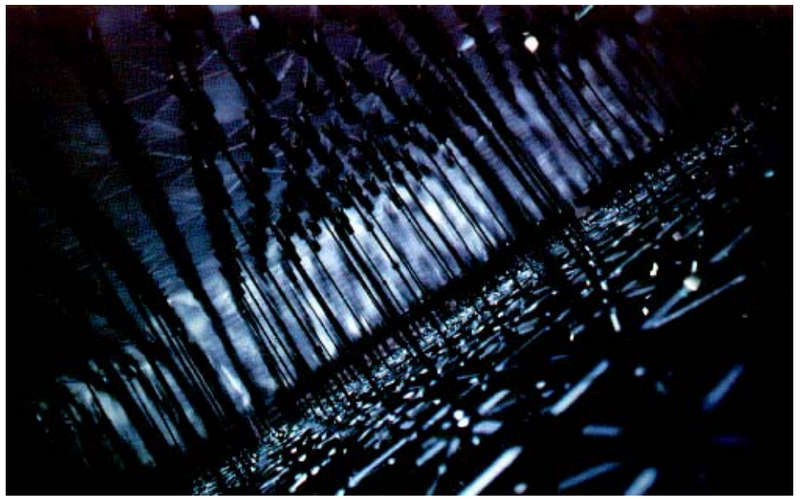


Fig 3.3a The Aegis Wall; Piston System (Leach N.2002:106)

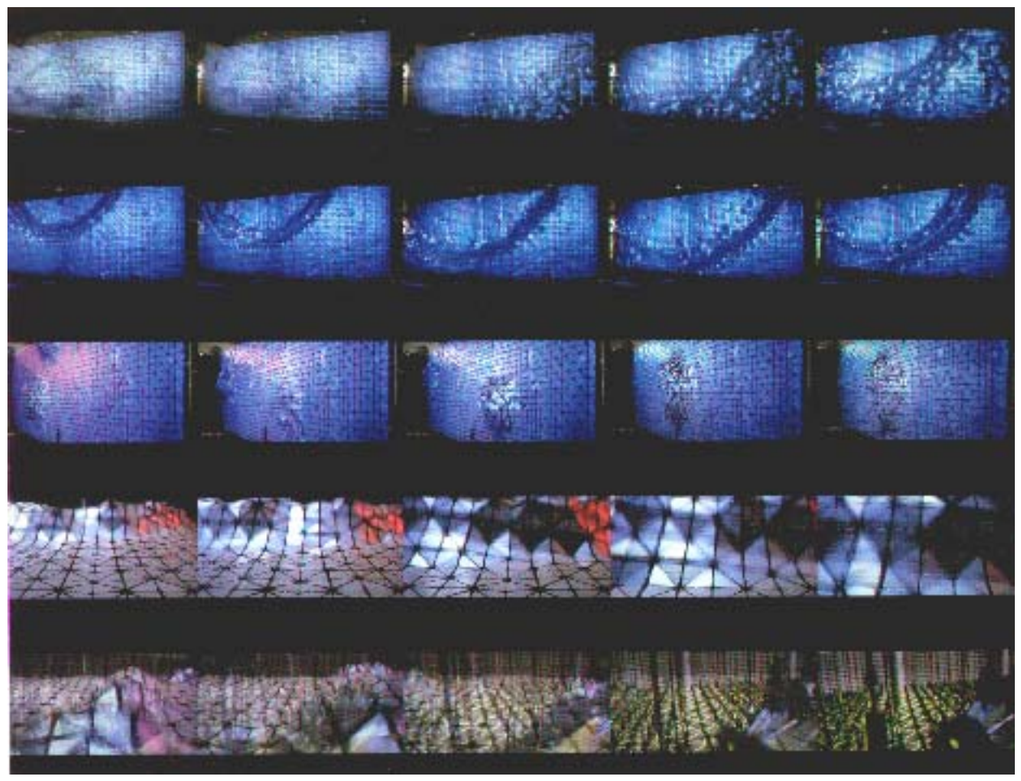


Fig 3.3b The Aegis Wall. An indication of the design's morphable properties (Leach N.2002:106)

3.3 A 'Smectic state' - The Aegis Wall

"Exploring what I believe are the two essentially new possibilities offered by computers - programmatic and parametric generative processes I realise that were creating not so much architecture as the possibility of an architecture which is born as a potentiality at the intersection of a matrix of variables"
- Goulthorpe M. *Designing for a Digital World.*2002:102

Mark Goulthorpe describes the Aegis Wall (Fig 3.3b) as: non-designed but formal and dynamic potentiality; alloplastic interactive artwork; animated architectural surface; and the digital dynamic surface morphing into a three dimentional space. The Aegis Wall is a physical structure that imitates the extreme dynamics of the digital and can be shaped and formed and reformed into any configuration. It is controlled by a computer allowing 1000 pneumatic actions every 0.01 seconds, and wavefronts propagating at 60kmh which displace 500 mm surfaces 2-3 times per second. The waves respond to sound movement. The cultural interest in such a project according to Goulthorpe is to determine new modes of creative and receptive possibility. (Goulthorpe M.2002:101-106)

The strength of the Aegis project in my opinion is in its attempt to merge the virtual and the analogue into a singular entity that allows the distinct border created by the computer screen to dissappear. However, the project is not true to the digital because it does so with a very real piston system (Fig 3.3a) that only creates an illusion of a three-dimentional digital entity.

Digital Realm

Now that different museum models have been examined, this study will identify what is to come in future museums. This study has investigated museums with norm breaking design, and delved into digital culture. Now a study will be done of a museum that is still to be built: The Great Egyptian Museum Project in Cairo – the inspiration for this project. This is done to understand the objective of the contemporary museum and what the museum model is evolving into, as well as how the contemporary museum incorporates digital culture into its programme.

Fig 4.1 (above)
Interior Picture of the existing Great Egyptian Museum in Cairo.
(The Great Egyptian Museum Project Competition Brief:86)

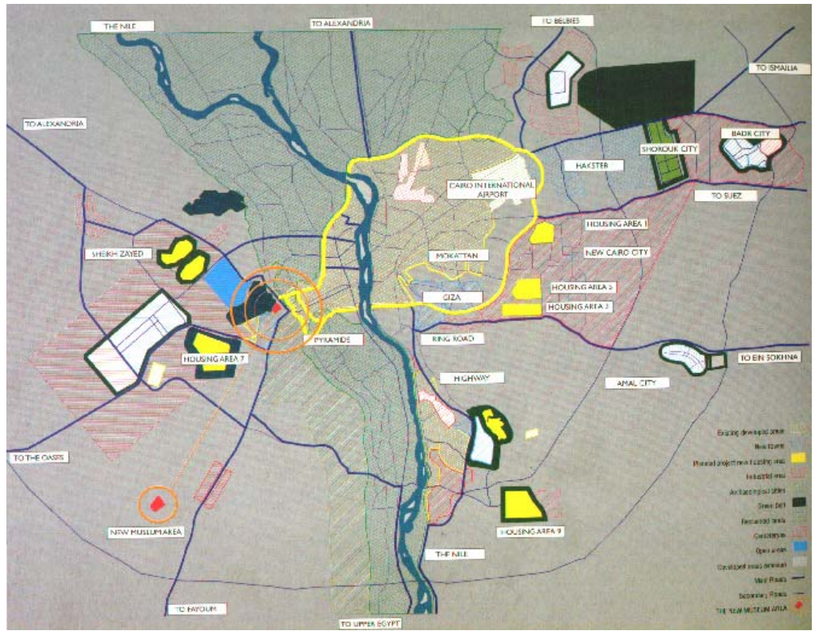


Fig 4.2 (left)
Diagramatic plan of the New Great Egyptian Museum propsed site in context.
(The Great Egyptian Museum Project Competition Brief:72)

4. THE GREAT EGYPTIAN MUSEUM PROJECT – GIZA

The Great Egyptian Museum Project competition brief is an example of what the scope of a contemporary museum could include. This study investigates the concepts of museum globalization and the design of a museum for the third millennium. Therefore this study closely investigated the Great Egyptian Museum's competition brief to enlighten the brief of the proposed Global Museum.

4.1 The Brief of the New Great Egyptian Museum[1] Concept

The new Great Egyptian Museum will house both educational and recreational exhibition facilities that provide interactive information assimilation by utilizing computer and communication technology. It should also be the first virtual global museum and enrich the quality of the visitor's experience through interaction and synergy between the structure and its context. This new Great Egyptian Museum, according to the competition brief, should foster cultural awareness in a future world-wide audience and thus bring participation by and contribution to the tourism industry. The museum's main focus is on visitors, thus attracting a broad socio-cultural profile. Technological changes should not affect the museum's role. They can provide visitors with not only visual information, but also access to laboratories and research facilities. (The Great Egyptian Museum Project Competition Brief)

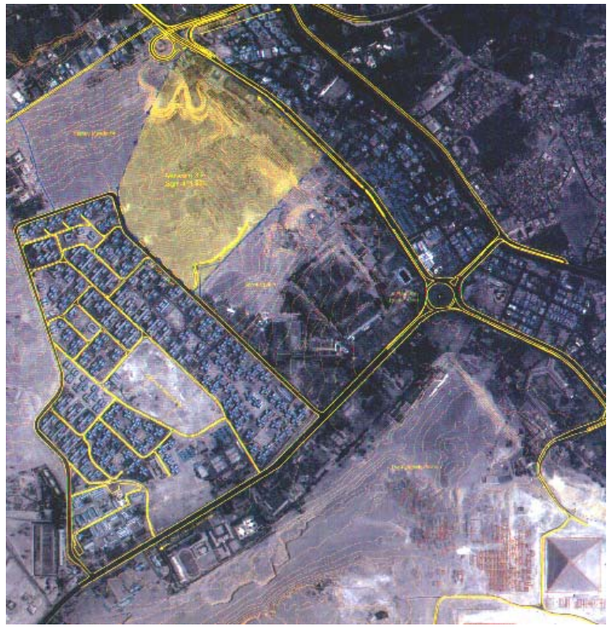
"Computer Architecture must provide guidance to the participants as well as the original routes in the museum, and its characteristic as a 'technological museum'."
- (The Great Egyptian Museum Project Competition Brief:35)

"Multimedia and audio-visual techniques offer wide support to gain knowledge of the world and its objects"
- (The Great Egyptian Museum Project Competition Brief:69)

"Exhibition interpretation and discussion by different media will enrich the collections."
- (The Great Egyptian Museum Project Competition Brief:152)

New museums are increasingly becoming more technologically orientated structures. They integrate old 'analog' museum functions with digital ones to enhance dialect, science, commerce and productive functions to allow diversified typologies.
They integrate into already existing urban structures rather than being monuments placed on 'virgin' sites. These museums support core business activities. Their spaces and pathways harmonize with the surrounding urban structure, becoming venues of urban replenishment for both the local community and tourists.
The museum should ultimately be a state-of-the-art complex to provide access to a wealth of information and 'future' knowledge. The building should employ new technology to create more effective and efficient dissemination of information.
Museum Functions should include Enjoyment, Entertainment. Education and Cultural Experience. (Ibid)

1. Problematic of the Egypt Museum:
How can the unique legacy of Egypt be represented within a single building?
How can this building connect heaven and earth? (Egyptian Religion)
How can the new museum link the past to the future?



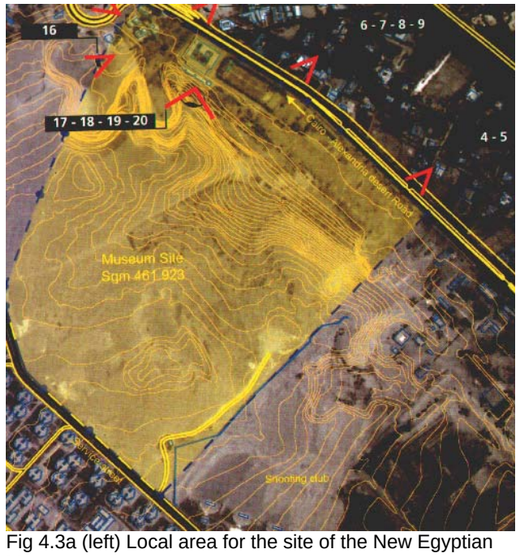


Fig 4.3a (left) Local area for the site of the New Egyptian Museum.
Fig 4.3b (right) Site and contours
(The Great Egyptian Museum Project Competition Brief: 73-74)

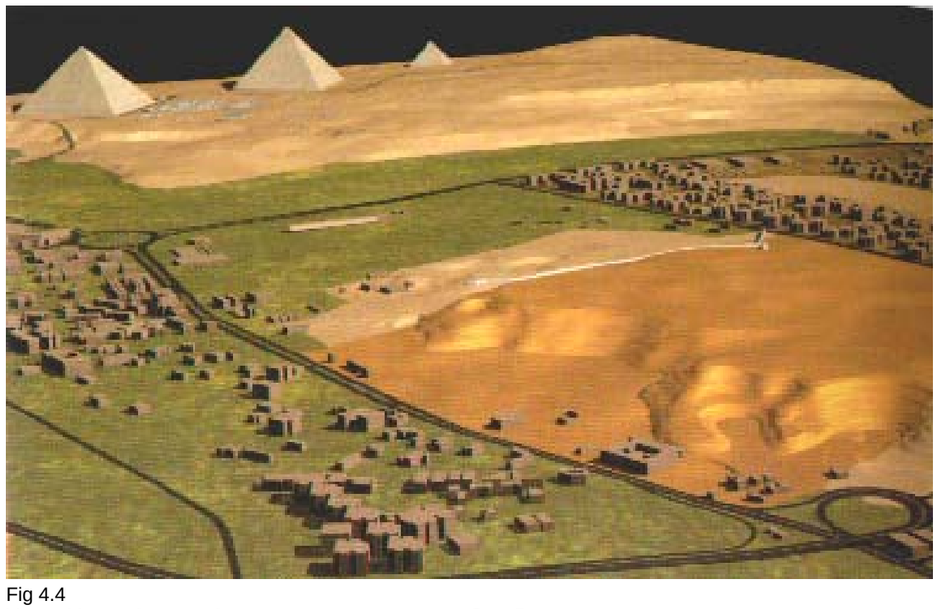


Fig 4.4
Virtual Model of the site for the new museum with the Giza Pycamids in the background.
(The Great Egyptian Museum Project Competition Brief:144)

In light of this brief it became clear the extent to which the museum as evolved into a visitor orientated and commercialized building and also the way the museum has adapted to new technological advances. The scope of this case study makes it clear that the new Egypt museum that is proposed is very much contemporary and caters for the future needs. The Museum definition is no longer to preserve artefacts today, but to serve the visitor.

4.2 Site

The museum should enter into the dialogue of the pyramids of giza. Site considerations for the project are the new egyptian museum's relation to the pyramids; internal and external area views; access to the museum; and the new museum's immediate surroundings

Although the New Egyptian Museum has a strong digital or virtual connection with the other museums both locally and internationally its contextual relationship with both the existing Egyptian Museum and the Giza Pyramids (a site of Egyptian Heritage) is still extremely important (Fig4.3a and 4.3b). As seen in the beginning of this document there was a time in museum history when artefacts were transported to different countries and collections were sub-divided. The great importance placed on location along with digital connectedness (examined later) emphasizes the importance for today's museum to connect with other great information sources. Only when physical connectedness is impossible is this process replaced by digital connectedness.

Therefore it is important for the proposed Global Museum to have a strong connection -both physically and virtually- to other South African museums and heritage sites.

4.3 Theory The Brief Suggests For The New Great Egyptian Museum

The theory comprises the integration of Modularity (time and space), Theme (space coresponding with the exhibits), Dynamic (constant change in that which is exhibited), Networking (linking with museums worldwide) and History.
The aim is to create a museum that reflects cultural ideals, today's social needs and the visitor's relationship with the exhibit, where the museum itself is viewed as an Egyptian piece of art for the effective analysis, storage and display of treasures.
The museum should be the 'new' museum in setting new standards for museum design.

Once again the ever changing museum model can be seen. The contemporary museum should never stand still, but rather be an ever evolutionary process.

4.4 Objectives Of The New Great Egyptian Museum

The objective of the museum is to provide a complex of exhibitions to the public, giving them a wide spectrum of information. There should be integration between the container and its collection, and the exhibit and the display instruments.

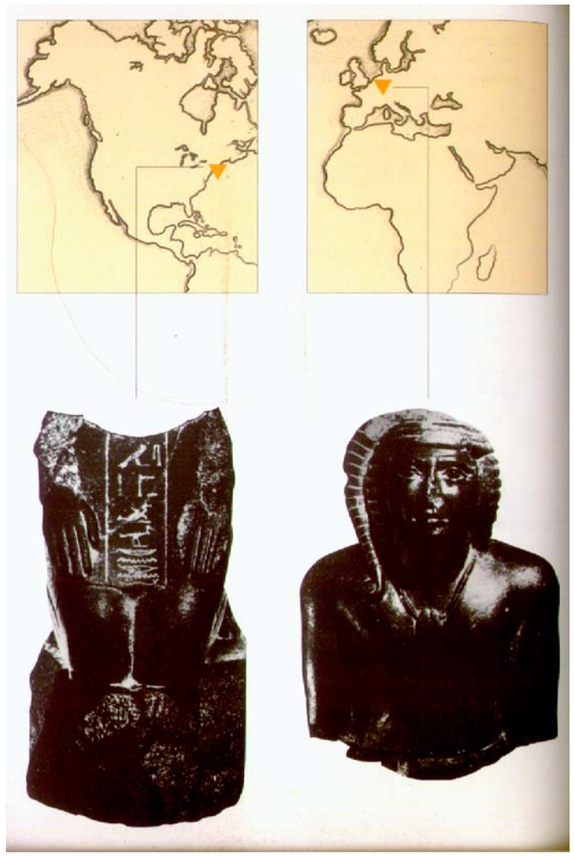


Fig 4.5 Digital Artefact Assembly
(The Great Egyptian Museum
Project – Giza:20)

4.5 How The New Great Egyptian Museum Should Incorporate The Virtual

"Computer technology has effected dramatically the museum organization worldwide" – (The Great Egyptian Museum Project Competition Brief:18).

Technology allows for exhibitions in combination with physical artifacts and global, virtually housed antique collections. Using the appropriate technology, the museum can act as a centre of excellence for contemporary Egyptology. The museum should employ user-friendly database technologies, using the virtual to reconstruct artifacts located at different global locations (Fig 4.5) and exhibiting both these artifacts and any other artifacts that are too valuable to expose to the public. (Ibid)

Virtual reality is today perhaps the single most effective means of communication and the sharing of information. Thus a museum, being a information source, should unify with the digital in order to improve its own function.

4.6 Museum Layout and Exhibitions

Visitor movements and navigation should inspire spiritual, visual and historical wealth in the exhibitions. Ambience and lighting should suit that which is exhibited. The logical and dynamic relationships between the exhibitions should be networked and arranged according to visitor movements. Contemporary museum standards, lighting, etc. should be incorporated with the museum design. The exhibition galleries should allow adequate space for future growth both in the number of visitors and of displayed artifacts. New and old museums should complement each other instead of compete against each other. The exhibitions will allow a complex network of thematic displays that are independent, yet related to each other, allowing for the possibility of changing the exhibition both in the form and in the function of the individual units. The thematic layouts are chronologically linked focusing on the public and its interaction with the objects. Ultimately a museum is created which integrates exhibitions with restoration and conservation, and facilitates viewer-artifact interaction. The museum acts as a gateway to archeological sites (through 3D virtual archeological reconstructions) and as a vehicle for heritage promotion. The virtual also allows for exhibitions of materials held within other museums (Fig 4.6; Fig 4.7). The routes that visitors are allowed to travel are dynamic and allow more freedom of choice than the set routes usually proposed by curators. The visitor then decides on the order and type of information consumption he/she prevers. (Fig 4.8). (Ibid)

4.7 Museum Functions

The new Great Egyptian Museum functions includes permanent and temporary exhibitions; Research spaces; Educational facilities; Training facilities; Artifact restoration facilities; A virtual museum of world-wide Egyptology; Study areas; Library; Conference halls; Visitor facilities; Management, administration and offices; Technical and surveillance services; An archeological worksite (digital); and 'Hypertext' chronological display (Fig 4.8) (Ibid:198,208-209)

These functions gives a good indication to a possible programme schedule needed for contemporary museums, though at a much larger scale than the proposed Global Museum. Note that archeological work sites are considered as part of the museum program schedule even though it is by digital means and will not exist in physical built form within the New Great Egyptian Museum.

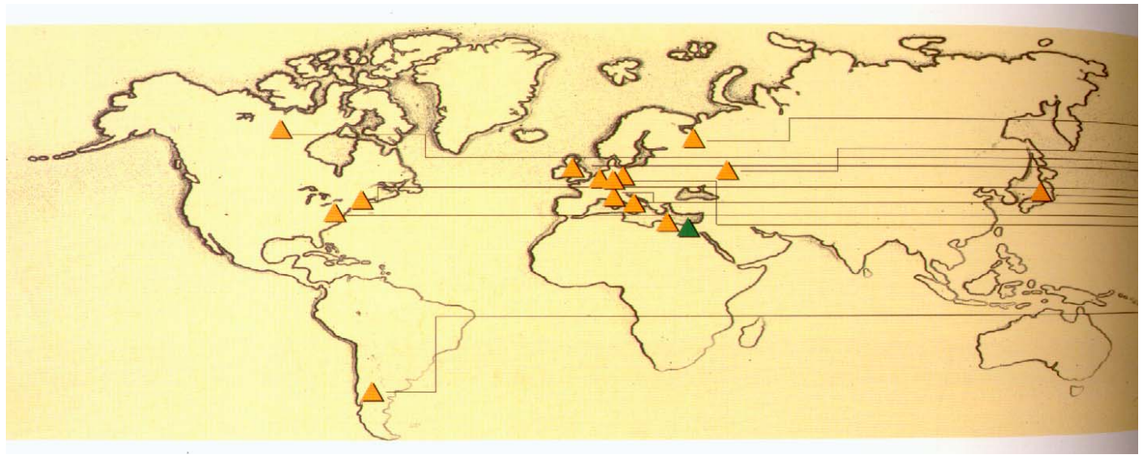


Fig 4.6 Linking museums digitally on an international scale
(The Great Egyptian Museum Project – Giza:18)

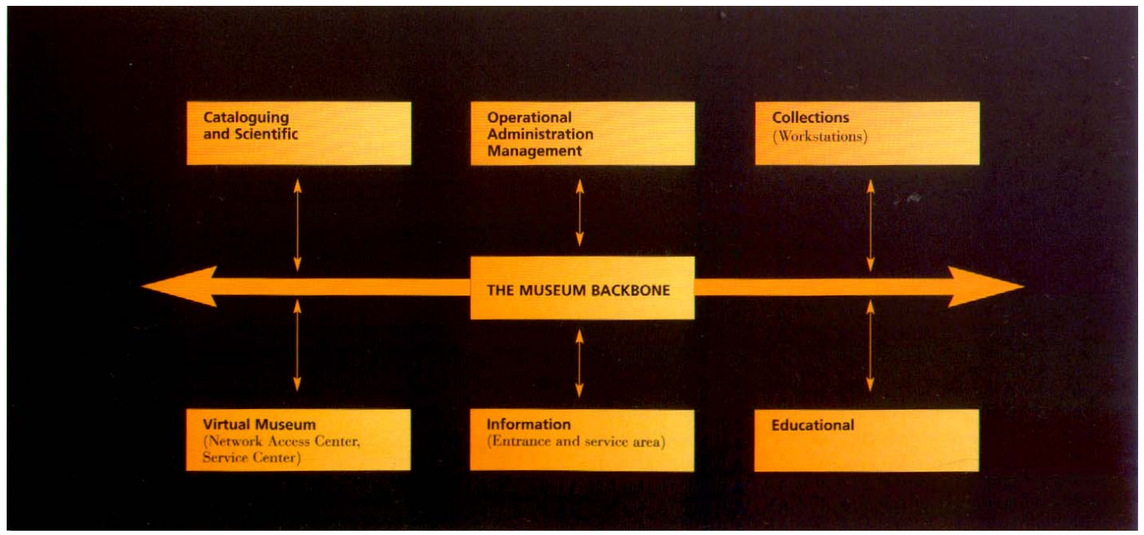


Fig 4.7 Egyptian Museum Backbone
(The Great Egyptian Museum Project – Giza:163)

4.8 Visitor-orientated social functions

The new Great Egyptian Museum should focus (according to the competition brief) on enjoyment and knowledge, integrating current and future history. The spectator creates the work as his presence creates the new Great Egyptian Museum, and through this process the visitor should be enjoying himself in a relaxed manner. (Ibid)

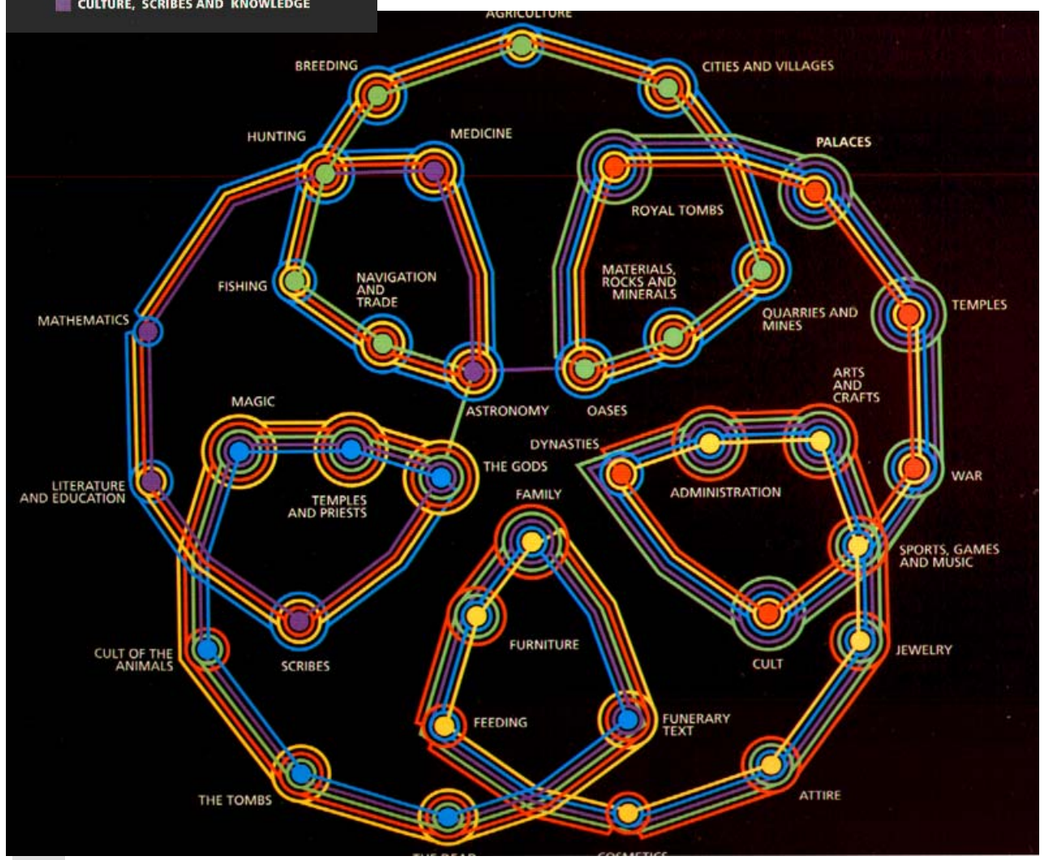
4.9 Commercial aspects and feasibility

A study is being done in alternative sources of finance, marketing and the 'commercial' logic of profit-based private investors. (Ibid)

4.10 How function determines space

The proposed museum should provide a radical transformation of space, function, organization and management fields, combining environmental, economical, training, culture and scientific research. Visitors should be allowed to see masterpieces, meet people, have lunch, rest, study and go shopping within the same facility. In the end only 50% of the museum is used as exhibition space. The importance of the visitor is again emphasized. The the competition brief considers

Fig 4.8 Hyper-Textual Routes
(The Great Egyptian Museum Project – Giza:96-97)



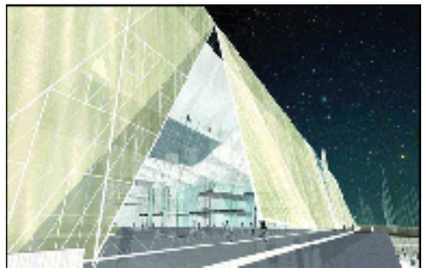
4.11 Hypertextual Routes

The Hypertextual routes (Fig 4.8) of the new Great Egyptian Museum create a display that does not exists of a curatorial designed path for the visitor to follow, but rather a set of different interconnected circuits which allow the visitor a diversity of paths to be followed. In this way the visitor is given a choice of routes he can follow to discover that which he is interested in most. This eliminates deeper curatorial selected meaning and rather places all focus on the raw information provided by the arte-facts.

As identified within the earlier sections of this document and in Contemporary Museum Design and Orientation (appendix a) visitor interaction with the artefacts has become an ever increasing factor of museum designs. It enriches the visitor's experience of the museum and increases the amount of information remembered after the museum visit.

These hypertextual routes not only create interaction with the artefacts exhibited in the museum, but also interaction with the museum itself. People who re-visit the museum can also acquire knowledge much faster thus reducing museum fatigue (as explained in appendix:i)

The proposed Global Museum will incorporate this concept by allowing the visitor to change to any set of information he/she wishes instantly and make his/her decision of data a part of the museum display. This way the visitor would not only be interacting with the display and the museum (as with the Great Egyptian Museum), but also unintentionally become themselves curators for the museum.



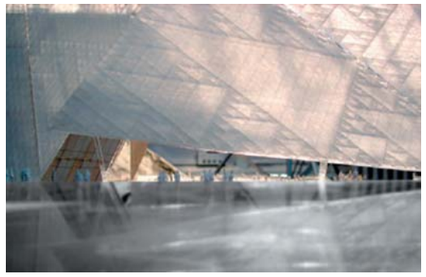


Fig 4.9 Competition Winner 2003
Heneghan.Peng.Architects.
New Great Egyptian Museum concept

This precedent study concludes the examination of the concept-related enquiries. The next section of this document consists of a site analysis, design concepts for the proposed Global Museum and the technical documentation. Here, that which was addressed in the previous sections will be ap-plied to the proposed Global Museum's design.

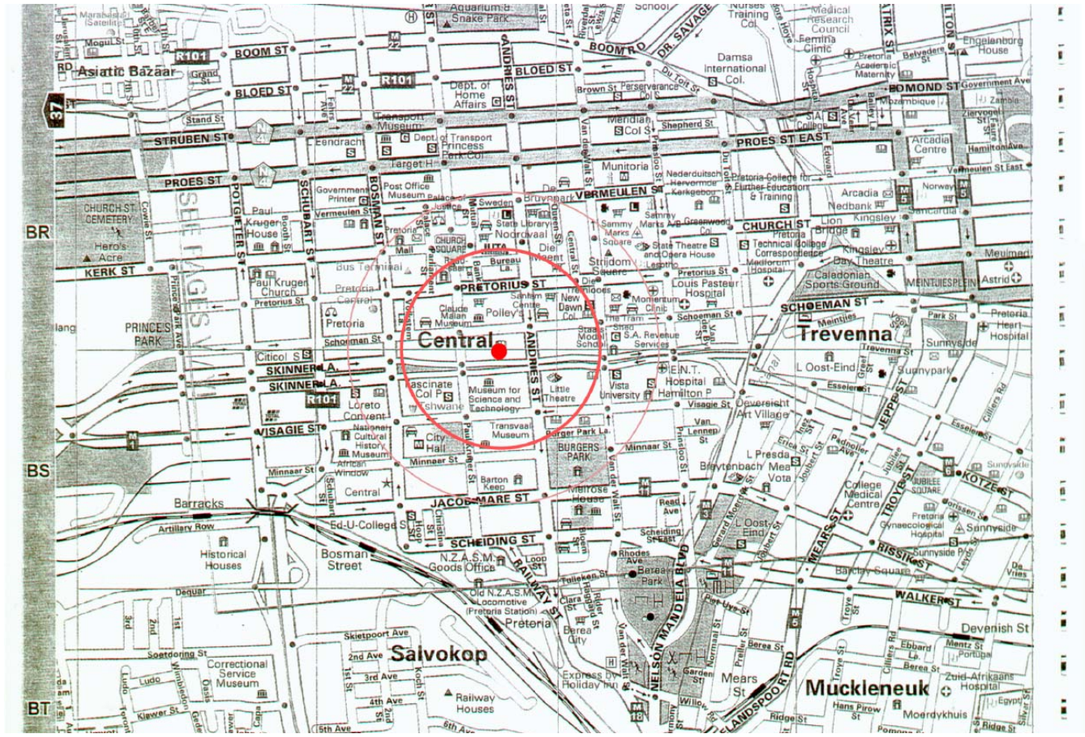


Fig 5.1 Site indicated on road map

Fig 5.2 Museum Park (**Tshwane Inner City Programme** Spatial Development Framework Presentation)

5. Site Analysis

5.1 Site criteria

The site is located on the northern side of Skinner Street between Paul Kruger and Andries Streets. The site was chosen according to the following criteria.

1. The museum should be located within the museum precinct as identified by the Tshwane Inner City Program.
2. Easy access.
3. Pedestrian Movement.[1]
4. South Facing Façade.[2]
5. Heritage[3]
6. Parking

5.2 Tshwane Inner City Programme

Museum Park (Fig 5.2)

The area between Church Square and Salvokop train station has been demarcated as Museum Park due to its richness in museums and heritage sites. Most of these heritage sites are facing Paul Kruger Street. Undeveloped areas include sites in the nothern part of Museum Park alongside Skinner Street both east and west of PaulKruger Street. These sites are ideally located for museum development because the bridge Museum Park and Church Square and lis exposed to the pedestrian movement between the Pretoria Train Station and Church Square.

1. There is great deal of pedestrian flow between Salvokop Train Station and Church Square alongside Paul Kruger and Andries Streets.
2. The South-facing main façade allows for open air digital displays facing onto the street.
3. The museum should be located in close proximity to the Science and Technology museum, the Geological Museum, the Transvaal Museum, Church Square, City Hall and/or any other museum or heritage significant sight.

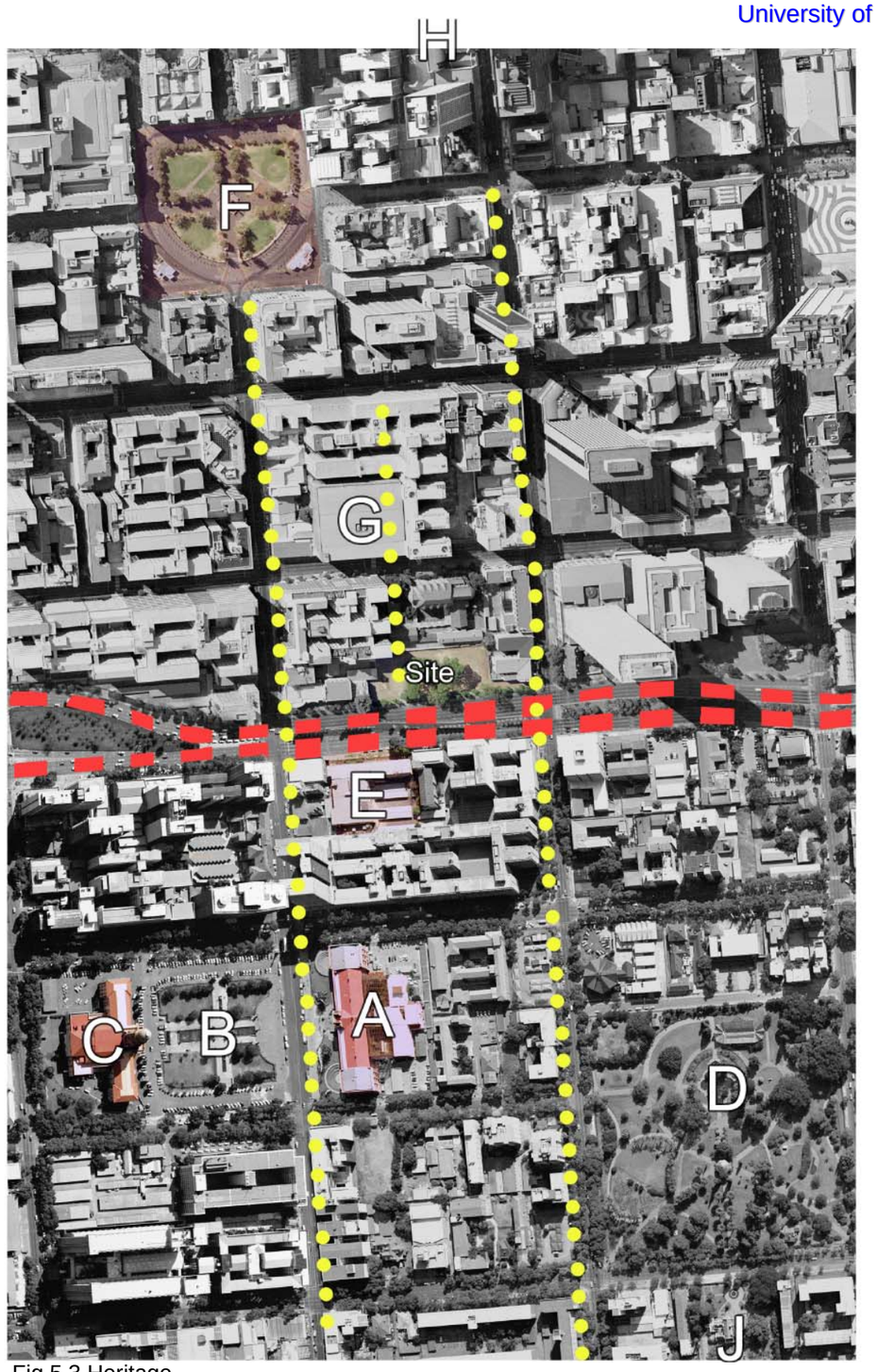


Fig 5.3 Heritage

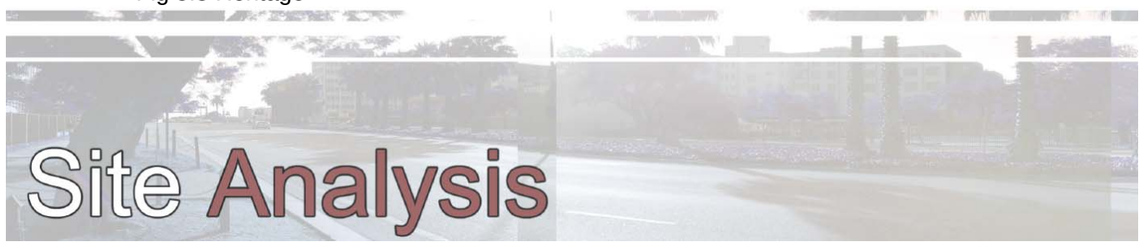
5.3 Heritage and museums map (Fig 5.3)

Heavy vehicle movement on Skinner

Pedestrian Movement

A - Transvaal Museum
B - Pretorius Square
C - City Hall
D - Burgers Park
E - Museum for Science and Technology
F - Church Square
G - Claude Malan Museum
H - State Library
I - Natural Cultural History Museum
J - Melrose House

The area of Museum Park (South of Skinner Street) is very rich in heritage sites and museums, most of which are situated along Paul Kruger Street. These buildings are also located on a high-level pedestrian movement route between the Pretoria train station and Church Square. The site of the proposed Global Museum is opposite the Science and Technology Museum and in close proximity to the other heritage sites and museums in the Museum Precinct. The role of the Global Museum is to act as an information source on multiple levels and its location offers a high level of exposure to the public both in traffic and on foot.



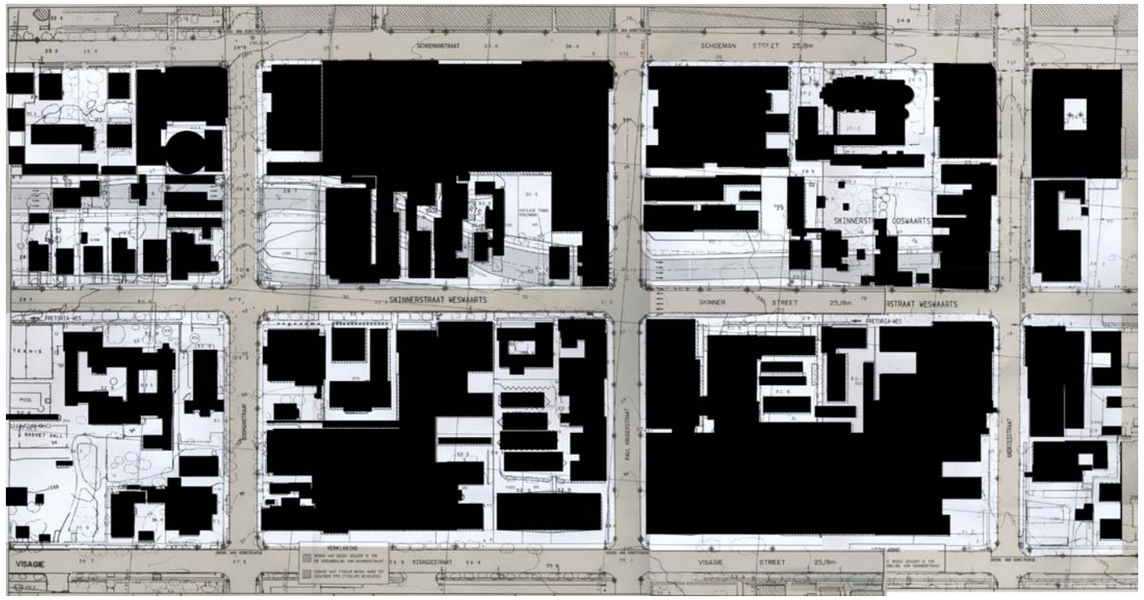


Fig 5.4 Skinner Street as it was before its upgrade (Original - RSA Government City Maps)

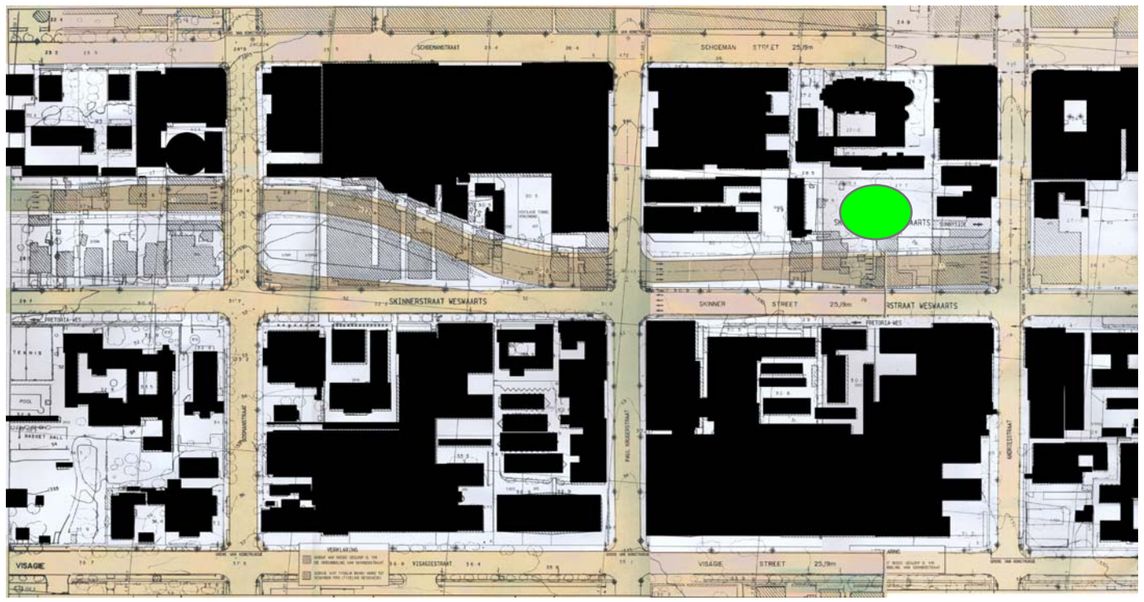


Fig 5.5 Skinner street in its current condition (Ibid)

5.4 Analysis of Skinner Street

5.4.1 Skinner Street as it was before its upgrade (Fig 5.4)

Before Skinner Street was upgraded it was a two-way street running east-west through the Pretoria inner city. A figure ground of the area and its surroundings indicates continous buildings on the southern side of the street and pedestrian access routes through sites alongside it in a north-south direction. Many of these elements related to each other on both sides of Skinner Street.

Due to traffic problems the street was upgraded and extended northwards into the building fabric.

5.4.2 Skinner Street in its current condition (Fig 5.5)

The upgrade of Skinner Street cut into the infrastructure of the northern sites on the street, as revealed by the figure ground. Skinner Street currently consists of two one-way streets running east-west through the inner city. Between the two one-ways the upgrade created islands now planted with palm trees. Due to higher traffic volumes Skinner Street and the islands created by the upgrade are currently acting as barriers between the Museum Park and Church Square Precincts. A non-pedestrian-friendly environment is created by higher traffic volumes. Many of the pedestrian access ways like Polleys Arcade have since been closed off. This does not make sense since these pedestrian walkways still continue north of Schoeman Street towards Church Square.

Some of the buildings on the proposed site (indicated by a green circle on the map of Skinner Street) has since been removed and is currently used as an unpaved parking area.

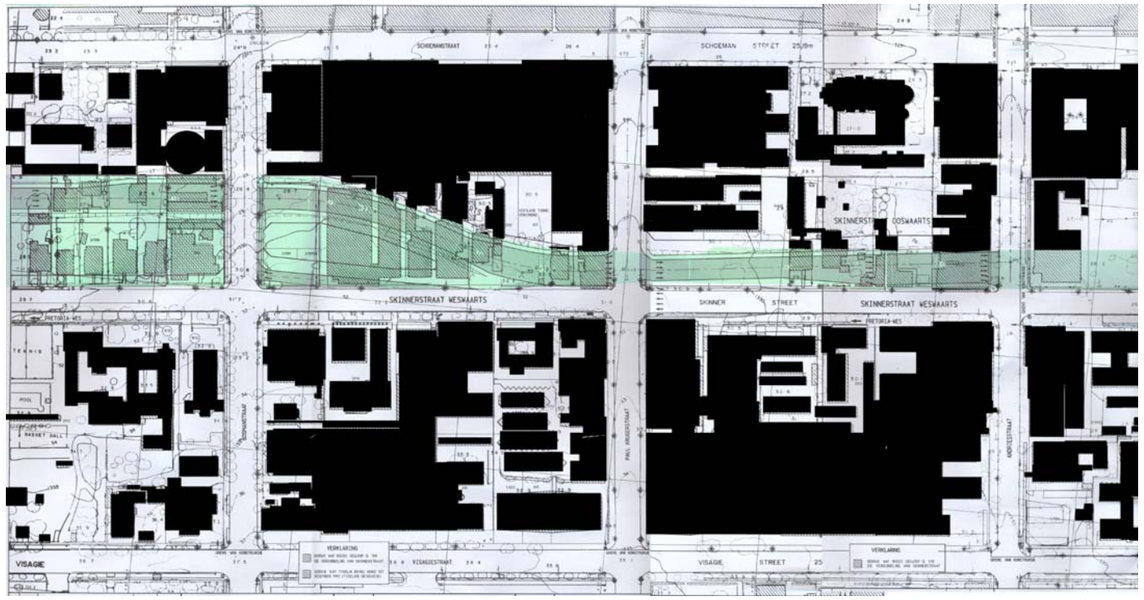


Fig 5.6 Skinner Site Degradation (Ibid)

5.4.3 Site Degradation (Fig 5.6)

This is an indication of the sites lost due to the Skinner Street up-grade. The sites created between the two Skinner one-ways are still architecturally undeveloped.

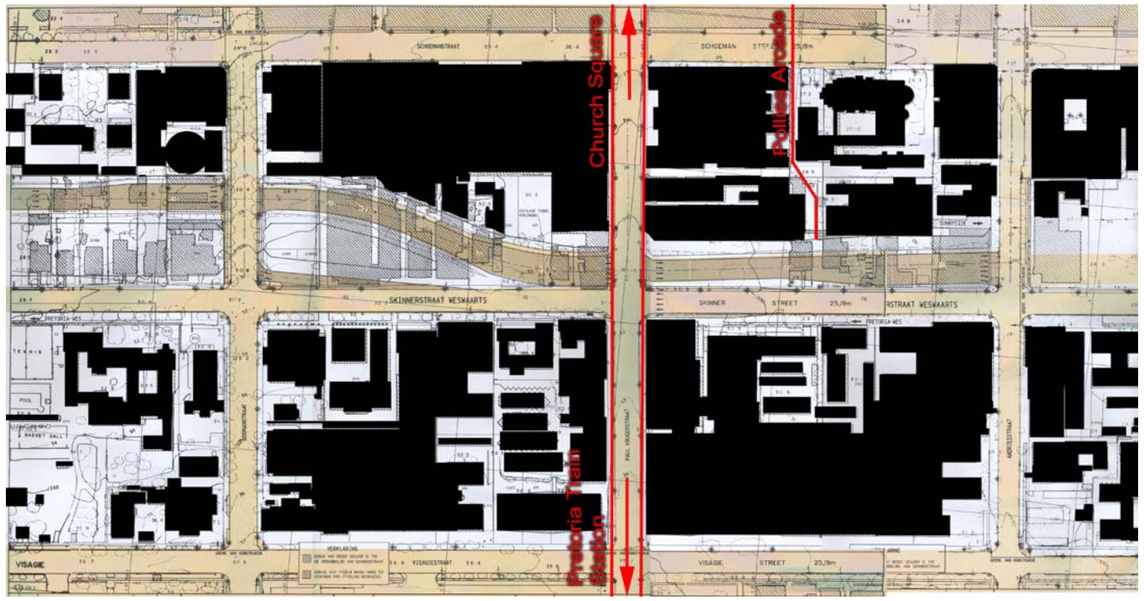


Fig 5.7 Skinner Street after intervention (Ibid)

5.4.4 Skinner Street after the intervention (Fig 5.7)

This map indicates what the figure ground will look like after the construction of the proposed Global Museum and the Pretoria Inner City Mounted Police Unit[1]. A continuous facade will be created along the northern side of Skinner Street, and Polleys Arcade will be continued southwards through the site to allow pedestrian movement in a north-south direction, reconnecting the lost pedestrian walkways.

1. As proposed by March(Prof) student Jan van der Westhuizen.

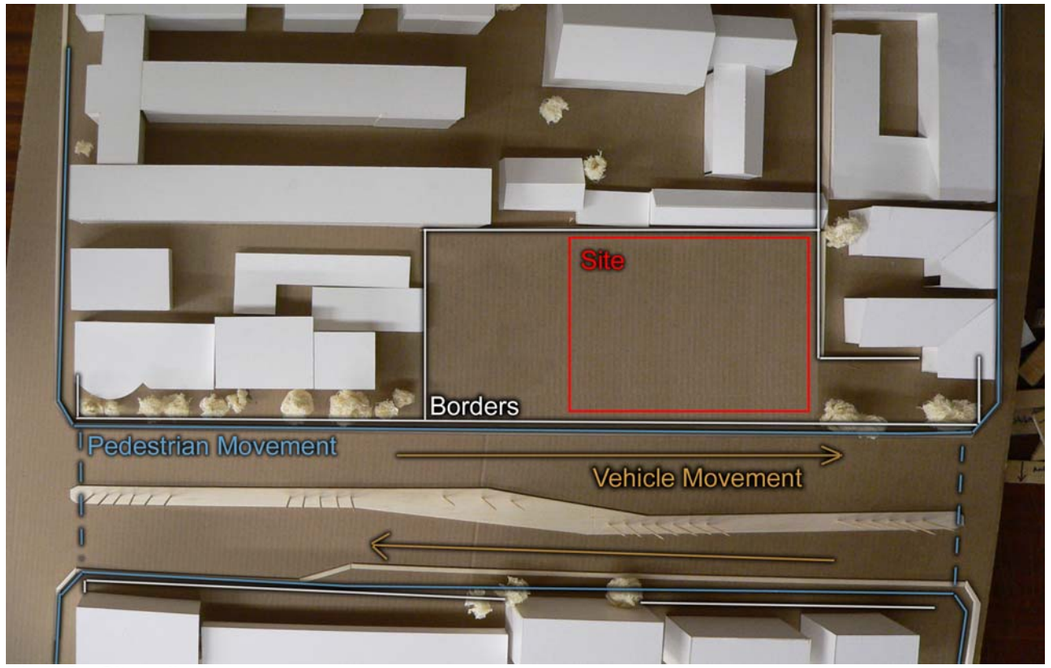


Fig 5.9a Site adjustments

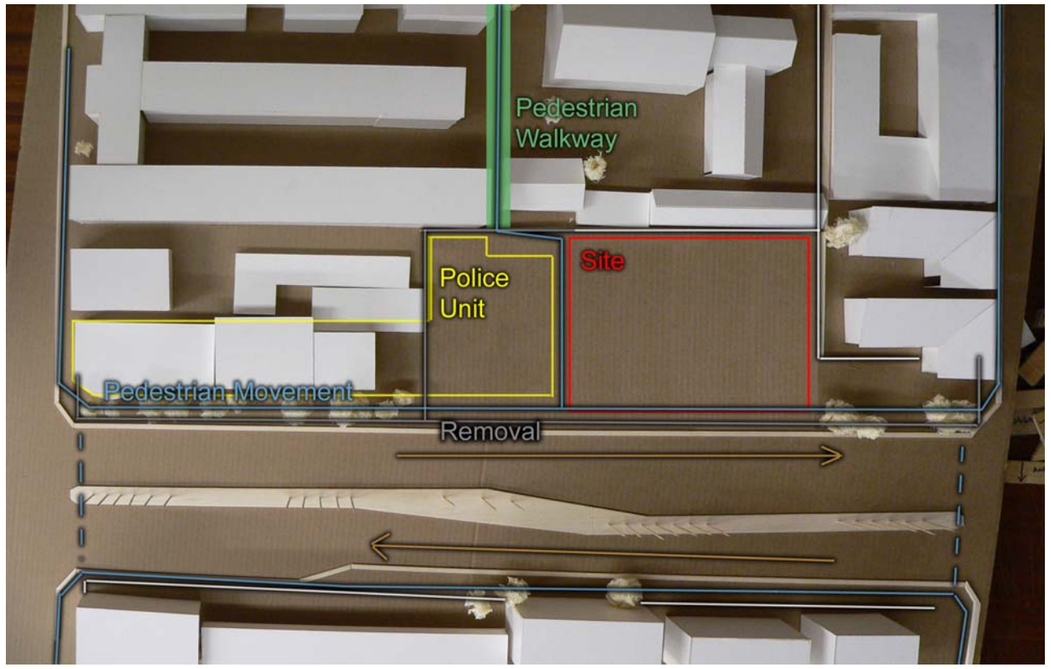


Fig 5.9b Site adjustments

5.5 Site adjustments (Fig5.9a and Fig 5.9b)

Pedestrian movement is forced onto the street edge as previously mentioned.

Key problems to address are:

How to create safe pedestrian-friendly movement areas within and around the site?

How to handle the high levels of vehicular movement on Skinner Street?

5.5.1 Removal

Removal of the borders on the southern side of the site (indicated in gray on Fig 5.9b) will allow pedestrians to move off of the edge of Skinner Street and penetrate into the more protective and shaded environment of the site. This creates a pedestrian-friendly area even if it is right next to the heavy traffic of Skinner Street.

5.5.2 Additions

Police Unit

The area indicated in yellow is the proposed site of the Urban Mounted Police Unit.

5.6 Pedestrian Walkway

The pedestrian walkway (indicated in green on Fig 5.9b) stretching north through the site will be reopened. It connects with a pedestrian crossing leading into the northern city blocks. This gives the pedestrians the option of moving through a pedestrian-scaled environment (indicated in blue on Fig 5.9b) rather than a vehicle scaled one. Both the Urban Mounted Police Unit and the proposed Global Museum Building will create public facilities opening onto the movement route running in a north – south direction through the site.

Fig 5.8 Collage of the signage on site and street facades done by the author

Fig 5.10a. Street facade of the Science and Technology Museum

Fig 5.10b. Icon suppliers building accross Transvaal Museum on the corner of Andries and Paul Kruger.

Fig 5.10c. Pedestrian Crossing north of the site on the western side of St Alban's Cathedral

Fig 5.10d. Polleys Arcade

Fig 5.10e. Arcade

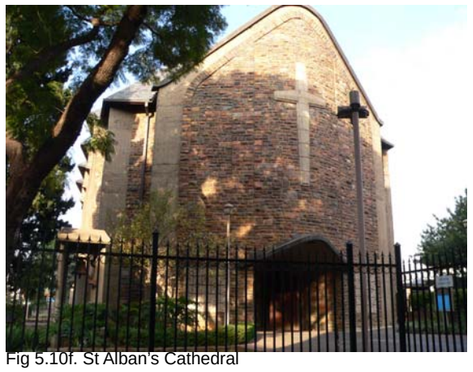


Fig 5.10f. St Alban's Cathedral

Site Analysis

5.7 Views

Fig 5.10a:
The Science and Technology Museum is located on the southern side of Skinner Street and shares a visual connectedness with the Global Museum. It is ironic that the public space created in front the museum by a continual staircase is closed off with a security fence. The same situation is seen at most of the other museums in Pretoria (including the Transvaal Museum), but not at the park surrounding the Art Museum, where it results in a pleasant public space.

Fig 5.10b:
This building is situated west of the Global Museum, but is to be changed by the proposed Urban Mounted Police Unit.

Fig 5.10c:
A pedestrian crossing at the end of Polleys Arcade. This pedestrian crossing has lost its function since the pedestrian walkway that used to continue southwards from Polleys Arcade past St. Albans Cathedral has since been closed. With the re-opening of that pedestrian walkway and its continuation past the Global Museum towards Skinner Street, this pedestrian crossing will regain its purpose.

Fig 5.10d and Fig 5.10e:
Polleys Arcade

Fig 5.10f:
St. Albans Cathedral is constructed from local stone. The stonework is dark blue, grey and green with terra-cotta detailing.
The windows are framed in concrete.
It was originally designed by Herbert Baker and Massey in 1905. Extending the first 1878 structure which was built by engineers.
It was later upgraded by Mallows (1965) and is currently the chair for Bishop J. T. Seoka. The cathedral is on the site just north of the Global Museum and thus shares a very strong visual connectedness with it. St. Alban's Cathedral holds Sunday services at 7:30 am.

Fig 5.10g. Pedestrian Crossing north of the site on the eastern side of St Alban's Cathedral

Fig 5.10h. St Alban's Cathedral's site

Fig 5.10i. Housing block on Andries Street.

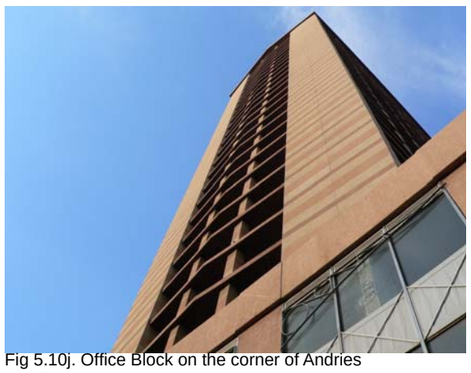


Fig 5.10j. Office Block on the corner of Andries and Skinner.

Fig 5.10k. Project site as viewed from andries street. Skinner street can be seen on the left (south) and furniture shops on the right (north).

Fig 5.10l. Opposite side of previous photo (left). Skinner can be seen on the right (south).

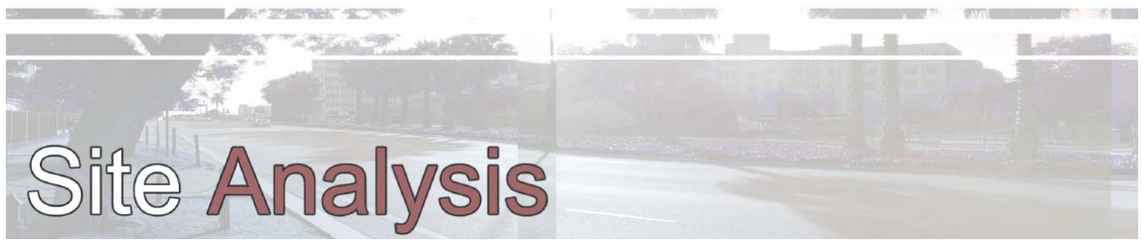


Fig 5.10g:
The second pedestrian walkway north of Skinner Street that has since been closed. While the extension of Polleys Arcade is on the western side of St. Alban's Cathedral, this walkway is on its eastern side.

Fig 5.10h:
St. Alban's Cathedral is on the right-hand side of the picture and the Global Museum site is on the left-hand side of the picture. The buildings seen on the right are later extensions to St. Alban's Cathedral.

Fig 5.10i:
The facade of Andries Street mainly includes commercial buildings on ground level with housing on the upper stories of the buildings. The housing is in a relatively poor condition and not well maintained. Looking up from Andries Street, laundry can be seen on the balconies. The housing is closed off at the back of the buildings which face the Global Museum site.

Fig 5.10j:
This office block is the highest building in the area. It is situated on the corner of Andries and Skinner Streets on the opposite side of the Global Museum's block. This building's upper stories can be seen from the Global Museum.

Fig 5.10k:
Trees line Skinner Street down the entire block on which the Global Museum is situated. While these trees offer good shading they are closed off from pedestrians by a black devil-fork fence. This fence forces pedestrians onto the sidewalk right next to the traffic on Skinner Street.
By extending Polleys Arcade and removing this fence to create public areas within the site a pedestrian-friendly environment can be created.

Fig 5.10l:
Towards the east, Skinner Street's sidewalk is in poor condition.

Fig 5.10m. Quality of Skinner sidewalk.

Fig 5.10n. Skinner street signage on the corner of Skinner and Andries.

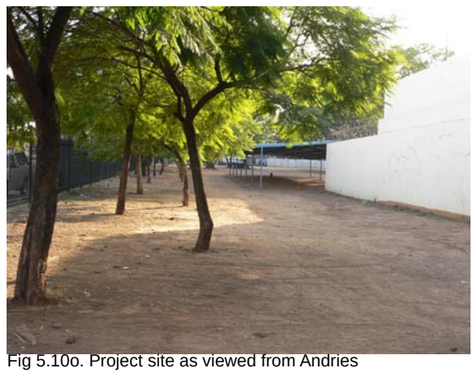


Fig 5.10o. Project site as viewed from Andries (eastern side of the site).

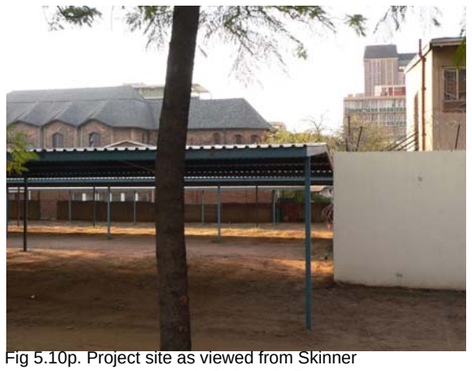


Fig 5.10p. Project site as viewed from Skinner (southern side of the site). St Alban's Cathedral can be seen in the background.

Fig 5.10q. Project site as viewed from Skinner (southern side of the site).

Fig 5.10r. Skinner street island.

Fig 5.10p
The proposed site. In the background, St. Alban's Cathedral can clearly be seen from Skinner Street. The Global Museum should allow for a visual connection to be maintained between Skinner Street and St. Alban's Cathedral. The extention of Polleys arcade wiil run past the Cathedral's west facade.

Fig 5.10q
The proposed Global Museum site. The proposed Urban Mounted Police Unit mentioned earlier lies to the left of the picture. The site is unpaved and contains no vegetation.

Fig 5.10r
These are the islands that were created when Skinner Street was upgraded. They are too small for development and act as a barrier separating the opposing Skinner facades. The Science and Technology Museum can be seen on the right of the picture and after it's construction the Global Museum will be visible on the left.

Fig 5.10s. View of Science and Technology Museum from the project site.

Fig 5.10t. Pedestrian movement on hard street edge of Skinner street.

Fig 5.10u. Heavy traffic flow of Skinner Street.

Fig 5.10v. Pedestrian movement on the corner of Skinner and Andries.

Fig 5.10w. Project site currently used as a unde-veloped parking lot.

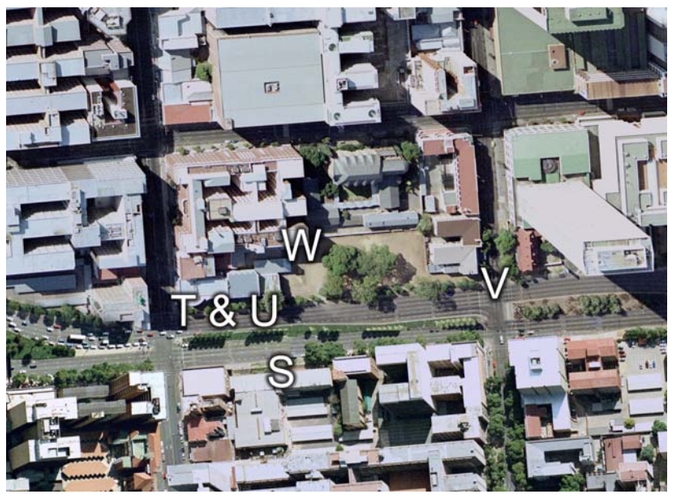
270 deg view of Project site.

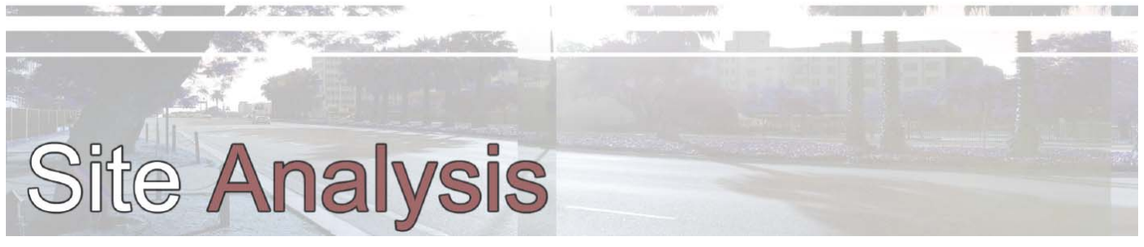
Fig 5.10s
The Science and Technology Museum is clearly visible from the site and vice versa. It is an important component of the concept of the lobal Museum to make a visual connection with another local museum. This view of the Science and Technology Museum will also be included in the Global Museum's virtual twin.

Fig 5.10t and Fig 5.10u
The hard street edge currently used for pedestrian movement.

Fig 5.10v
An indication of pedestrian movement past the site in an east-west direction.

Fig 5.10w
View of the H2 Laboria Building from the site.





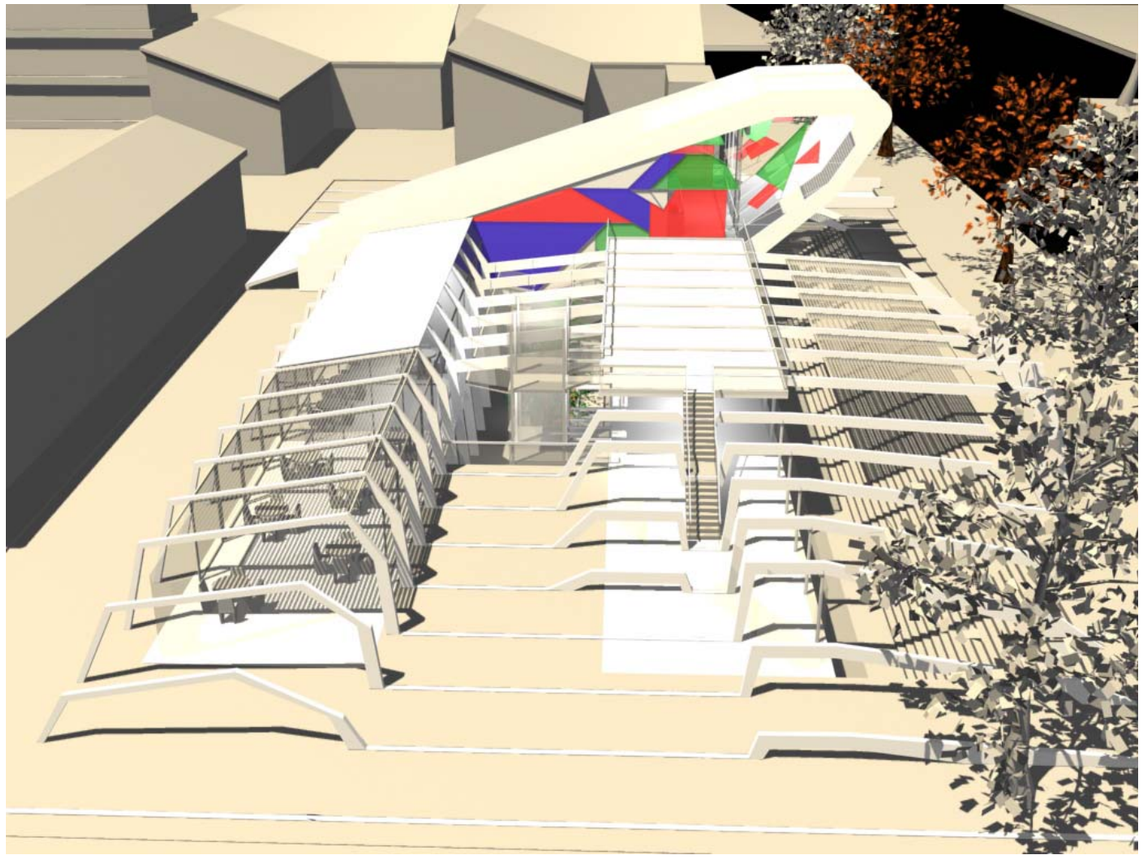


Fig 6.1 The proposed Global Museum as seen from the proposed Mounted Police Unit Station.

6. Proposed Global Museum - Design Concept

6.1 Design Influences

Museum
The contemporary museum definition, commercial logic and visitor orientated design influences the proposed global museum design. Another important influence is connecting the museums of Pretoria on a local scale, connecting South African museums on a national scale, and connecting to the global museum map on a international scale, as well as digital incorporation into the physical world, and Analogue - Digital Interaction.

Context influences include vehicular and pedestrian movement, the urban environment, the proposed Urban Mounted Police Unit, St Alban's Cathedral, and the weather

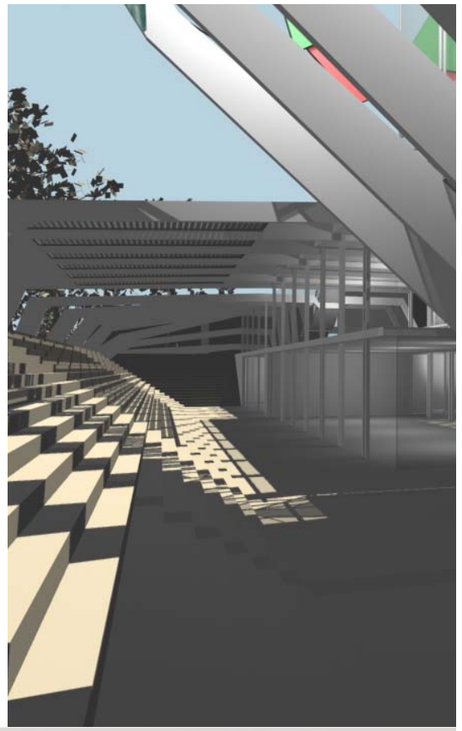
6.2 Design Concept

An important design problem is the combination of the new functions of a digital/electronic display surface; the creation of an analogue interior space that constantly mutates along with a digital one; and also the creation of a space and a structure that appear to move to represent the constant movement and evolution of the digital world. Finally, the building and the exhibition becomes one, to create a shell for the other functions of the building.

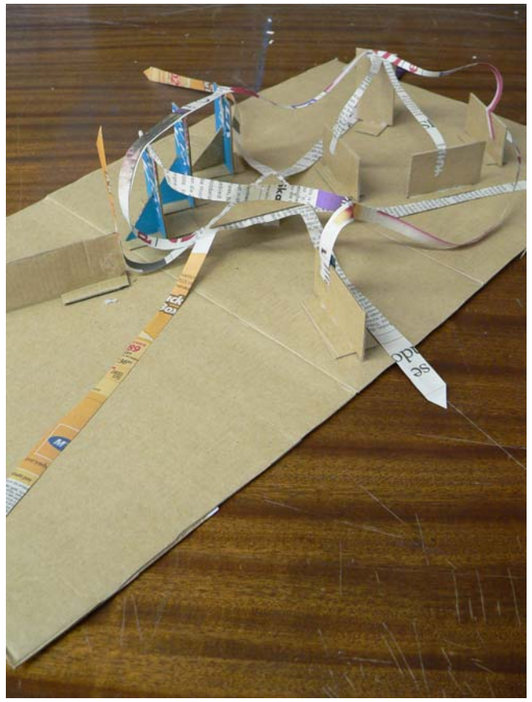
As said in the beginning of this document the museum spaces do not represent traditional ornamental architecture. Neither should there be blobs, meshes and deconstruction created by mouse, keyboard and visual computer software. Soft contours should rather be used as a metaphor for the quality of computer-driven representations and systems. (Manovich L.2002:1)

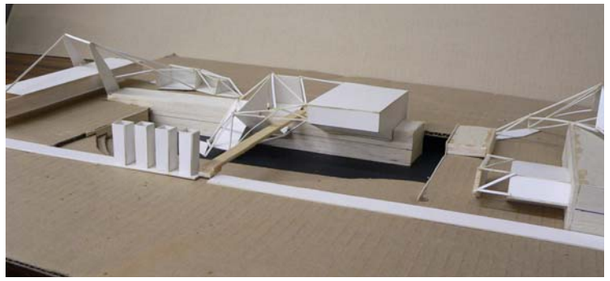
6.2.1 Vertical Contours

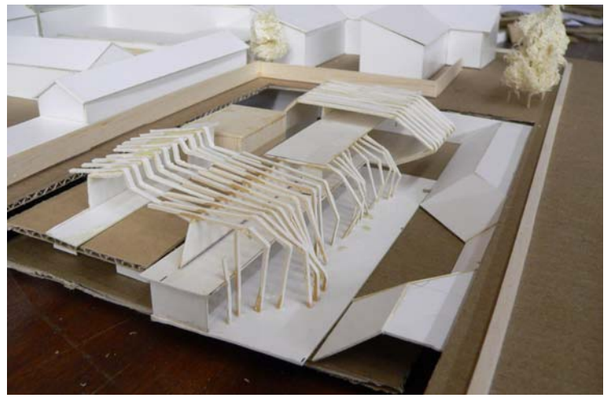
The building should not be a monumental and overpowering symbol driven by politics. It finds itself within an urban environment of buildings placed like objects upon the ground. The global museum prefers to fuse itself into the ground and becomes a part of the earth so that the boundaries between earth and building disappear. The 'vertical contours' used as a metaphor for the building that tries to fuse with the earth are still artificial and only representational of the ground, just like the digital is only representational of the real world.
These vertical contours are fully integrated with the building structure and functions in both interior and exterior spaces and contribute to the structural function of the building.

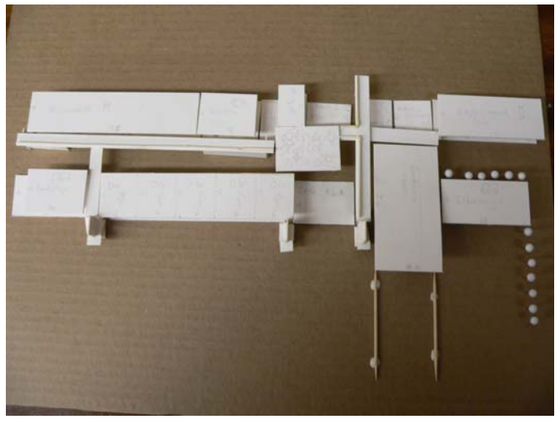


6.3 Concept Models and Concept Development









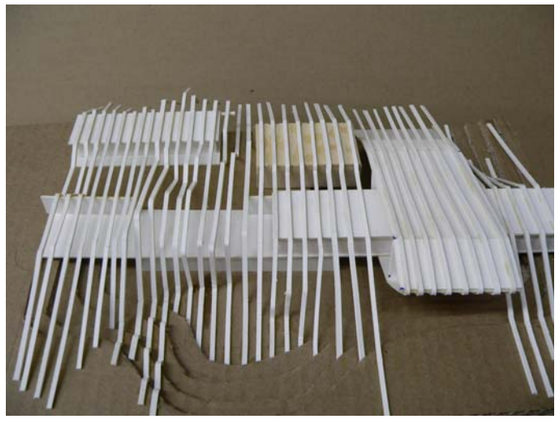
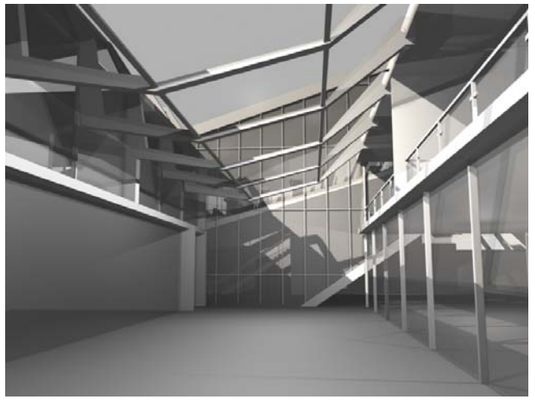
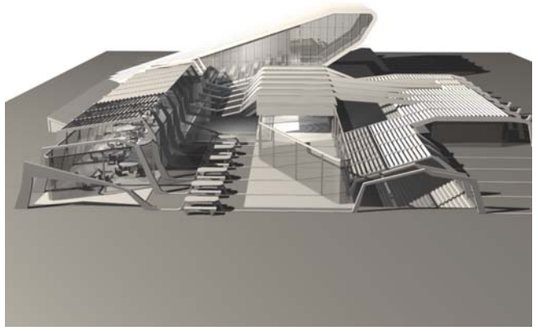


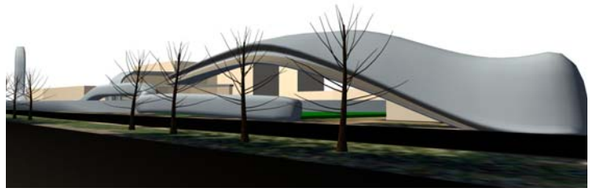
Fig 6.2 Concept Models

6.2.2 Concept Evolution

The design of the Global Museum evolved from two different concepts: the functionality of the museum as a container for people[1] and the morpheme quality of the digital. As can be seen from the concept models the building is a result of the clash between these two different qualities that ultimately share an interlinked unity. The digital is represented by the vertical contours as mentioned in section 6.2. The functions of the building (in contrast to the contours) are geometrically and functionally organized to ensure easy access by the general public and instant access to the museum's information sources in order to eliminate museum fatigue[2].







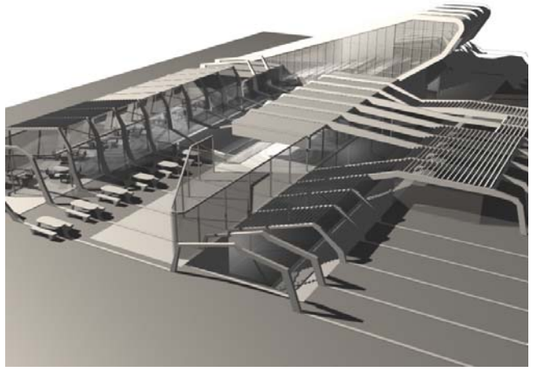


Fig 6.3 Virtual Concept Models

1. The contemporary museum is a people container rather than an artefact container as identified in section 2 of this document.
2. Refer to Appendix

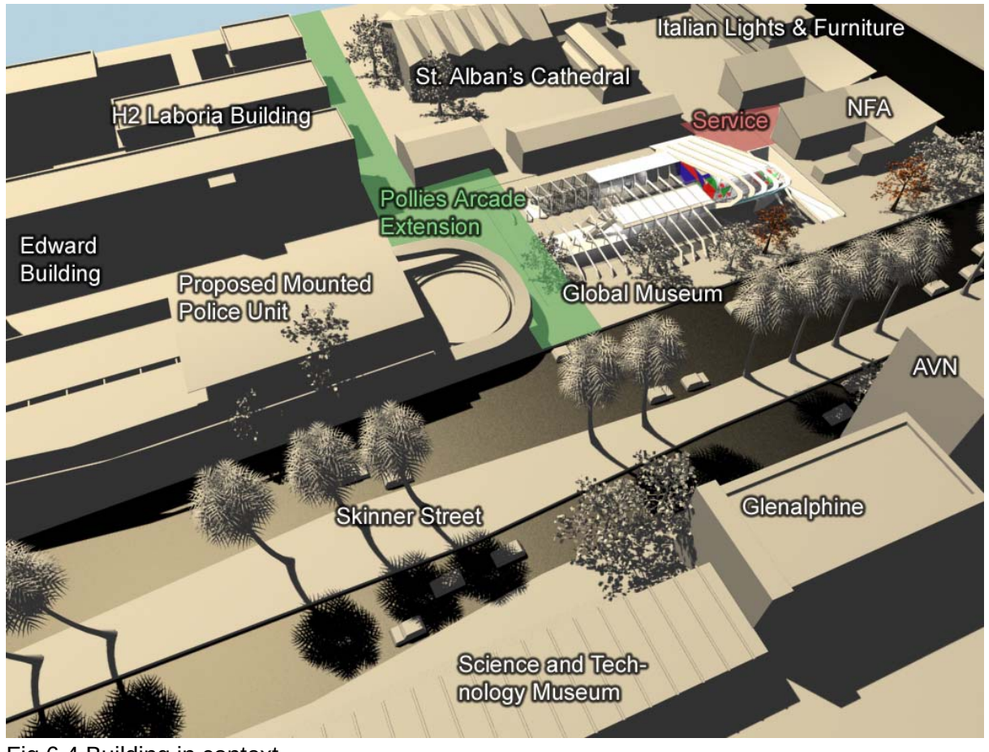


Fig 6.4 Building in context

6.4 The proposed Global Museum and its site

The context of the proposed Global Museum consists of buildings placed on the ground like objects upon a clear surface (Fig 6.4). The Global Museum fuses with the ground, turning the border line between building and site into a soft buffer and thus making it difficult to distinguish between the interior and exterior of the building.

The Global Museum and the Mounted Police Unit both open up to the proposed Polleys Arcade Extension (Fig 6.4), with public facilities creating a public square between the buildings. From this square access is allowed into the Global Museum. This area also contains disabled access through an elevator that connects all levels of the building.

At the north-eastern side of the building service access (Fig 6.4) is gained through an existing access route for the National Fashion Academy (NFA; Fig 6.4). These access points connect to the building's storage area through a service lift and to the restaurant service door.

Visitor vehicle access is gained via a ramp on the south-eastern side of the building that leads into the basement parking area.


Fig 6.5 Museum Interior - Virtual Museum Portal (Displayed images: www.deviantart.com)

6.5 Museum Display

The digital screens in the museum display areas (Fig 6.5), whether accompanied by analogue displays or stand-alone, are fully accessible by the public. When a person requires more information on an artefact or topic, he walks over to the touch screen to browse. As his curiosity leads him through the available media the display itself changes. The interior exhibitions and the exterior screens will be interconnected so that any person looking at the museum from the outside will see the information changing as it is browsed by the visitor inside. The visitor as such takes control of the information displayed by the museum and becomes the curator. In this way the entire museum display can be changed several times a day. This ensures information about the museum is constantly changing and adapting to newly available data. The digital realm is constantly adapting even if the building structure is static. Thus, though they are interlinked, both stay true to their respective natures.

Through the Virtual Museum Portal access can be gained to a virtual model of the building, as well as to other museums on the Global Museum Network currently developing. The other international museums will have access to the proposed South African Global Museum's virtual model through the Virtual Museum Portal. This system will also link the other South African museums and their information bases into the Global Museum Network.

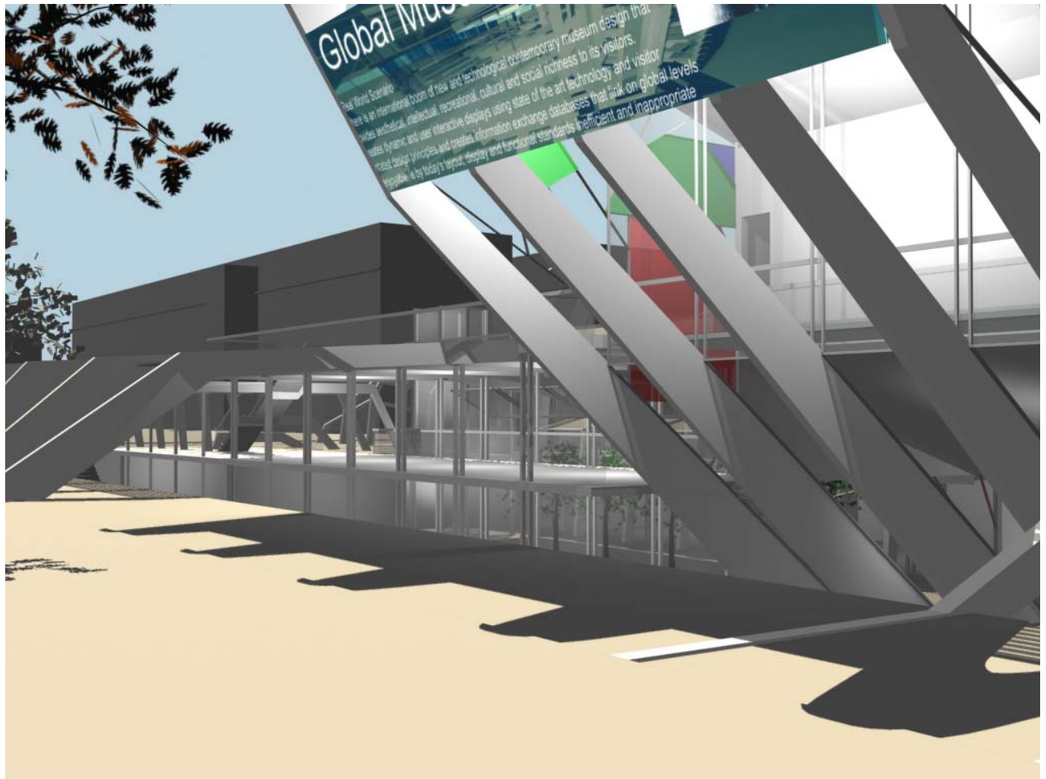


Fig 6.6 Museum Southern Facade

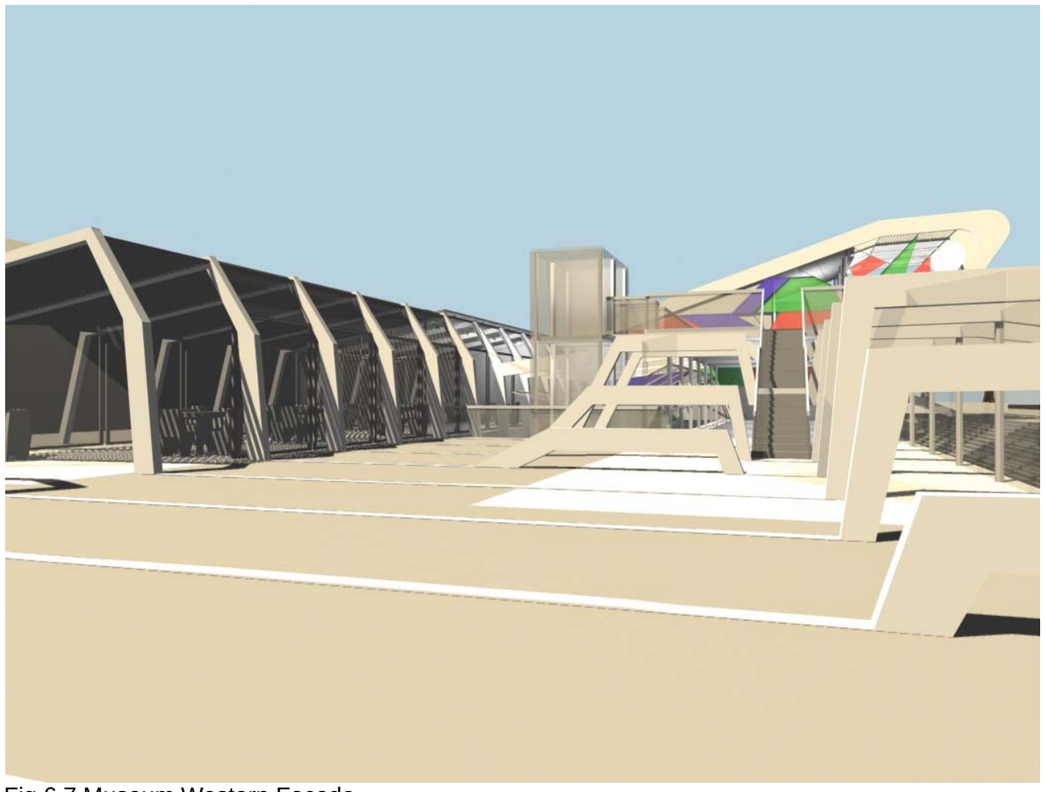


Fig 6.7 Museum Western Facade

6.6 Pedestrian Access

The main access point from Skinner Street to the museum (Fig 6.6) is emphasized by bending over the vertical contours and leading them down into the foyer. All specific museum-related functions[1] are centered around this area and on the ground floor, while all pedestrian-related functions[2] (Fig 6.7) are located next to the pedestrian movement route on the western side of the building.

This entrance holds a digital projection screen on the Skinner Street facade (Fig 6.8). It thus emphasizes the concept of the museum as a free communicator, thus It hides none of its information from the public. This screen will display current analogue-digital combination exhibits in the Global Museum and exhibits and upcoming events in other Pretoria museums, as well as any other important news or announcements within South Africa.

1. i.e. Computer laboratories, digital-analogue combination display areas, libraries, storage areas and security facilities.
2. i.e. Restaurant, news boards and public square. Also to accessible roof and conference area.

Fig 6.8 Skinner street islands with the Global Museum to the North of Skinner Street.

Fig 6.9a Virtual Museum Portal room

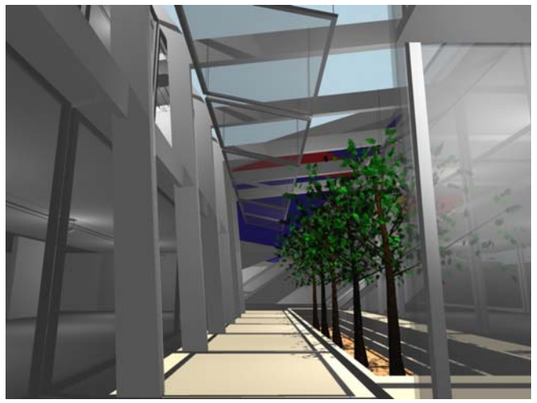


Fig 6.9b Museum Interior - Garden

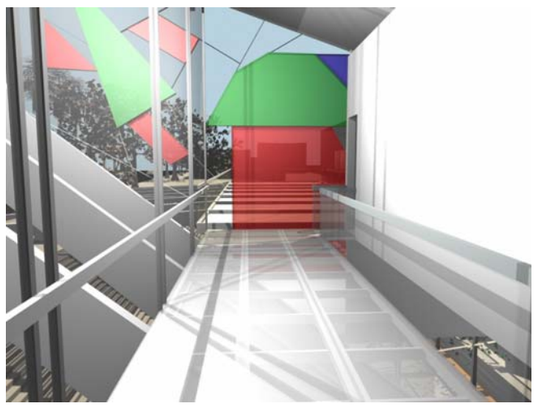


Fig 6.9c Glass Bridge - Conference Foyer

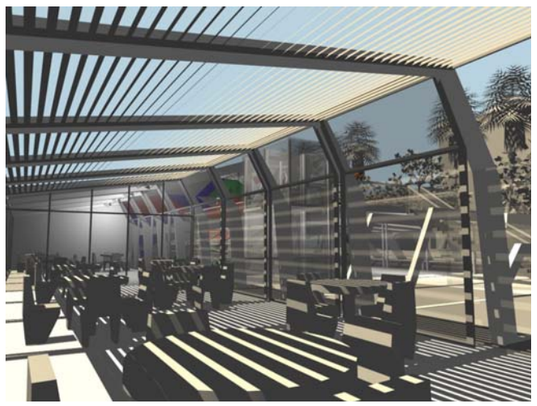


Fig 6.9d Net Restaurant

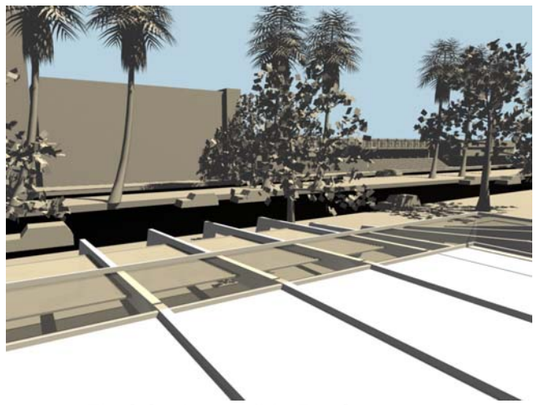


Fig 6.9e Accessible Roof

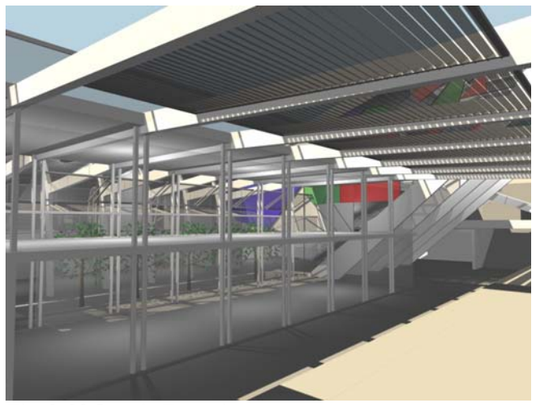


Fig 6.9f South Facade

6.7 Museum Interior

Interior spaces (Fig 6.9a) have no ornamentation so as to distract as little as possible from the exhibited information. The Virtual Museum Portal (Fig 6.9a) has a digital screen on the south side (Fig 6.9c) and opens on the north side to the courtyard garden of the museum. Access to this area is gained via the Polleys Arcade extension and the lift connecting all the museum floors.

The courtyard garden of the museum (Fig 6.9b) is open air. It gives access to the main reception area, main exhibition area, library, shop, security area, computer laboratory and mainframe. The garden itself is lined with suspended glass roofs on both sides to allow protection in harsh weather. The digital screens on the outside wall of the library display all currently browsed information in the library.

A glass bridge (Fig 6.9c) creates the foyer for the conference room (to the left of the picture). It is accessed by a staircase from the reception area and the accessible roof. Skinner Street and the staircase in front of the museum are clearly visible from this foyer and vice versa.

The Net Restaurant (Fig 6.9d) will give free wireless internet access to anybody who wishes to use the facility, provided they bring with their own laptop. It will also allow them a read-only connection to the museum network. Furthermore, there are digital screens on the southern wall of the restaurant with control panels on the restaurant tables.

From the accessible roof (Fig 6.9e) the Science and Technology Museum (to the right hand side of the picture) is clearly visible as well as Skinner Street, St. Alban's Cathedral and most of the rest of the Global Museum. This roof serves as a resting and smoking area for conference breaks.

Louvre systems on the southern side of the museum (Fig 6.9f) create shading for the continuous front stairs that lead down to the museum. When active, the digital screens on the glazed facade will transmit the information accessed within the museum (as stated in section 7.2). When inactive, one can see through the entire building past the garden to the library. The concept of transparency is thus applicable to in the building itself, as well as to the information it displays. The information displayed externally then acts as an advertisement to catch the pedestrian's attention.

7. Technical Investigation

7.1 Accommodation Schedule

The accommodation schedule is as follows:

Entrance
- Foyer with information counter - 80 m2
- Rest rooms
  - Class A1 Occupation Building inhabited by an estimated 1 preson per m2 floor area :
  - Total building size estimation: 1000 m2
  - Building requires the following sanitary devices:
    - Mens:
      - WCs: 4
      - Urinals: 12
      - Hash hand basins: 4
    - Ladies:
      - WCs: 14
      - Hash hand basins: 7

(SABS 0400 Building Regulations - 1990)

Exhibition space
- Integrated exhibition with other museum functions
- Analogue-digital exhibition area - 150 m2
- Museum Portal - 150 m2
- Screen display - >50% of non-exhibition museum area

Computer laboratory - 100 m2
- 30 Workstations
- Reception - 20% of computer laboratory area
- Security

Library - 100 m2
- 15 Workstations
- Archive - 60m2
- Museum Network Access
- Security
- Reception - 20% of Library area

Auditorium - 150 m2
- Seating - 80 to 100
- Projector room - 40 m2

Services
- Service entrance
- Storage - 70 m2
- Maintenance laboratory (connected to storage facility) - 40 m2
- Security - 100 m2
  - Technical and surveilance services

Material storage- 130 m2
- Data disk archives - 20 m2
- Mainframe - 40 m2
- Cooling system
- Backup System and Backup Drives

Office space
- 5 Office cubicles @ 20m2 - 100 m2
- Conference room - 50 m2
- Management and administration

Public Areas
- Net restaurant - 200 m2
  - Kitchen - 30% of restaurant area - 60 m2
    - Stoves and Ovens
    - Washup
    - Vegetable preperation counter
    - Freezer
    - Storage
    - Refuse
    - Service Access
    - Wine, Spirits, Beer amd Minerals Storage

(Neufert,1980:215-230)

- Shop - 50 m2

Parking
- Site currently caters for 100 car parking bays (undeveloped)
- Parking available after intervention: 60 formal parking bays (basement)
- Bus stop

Public Square

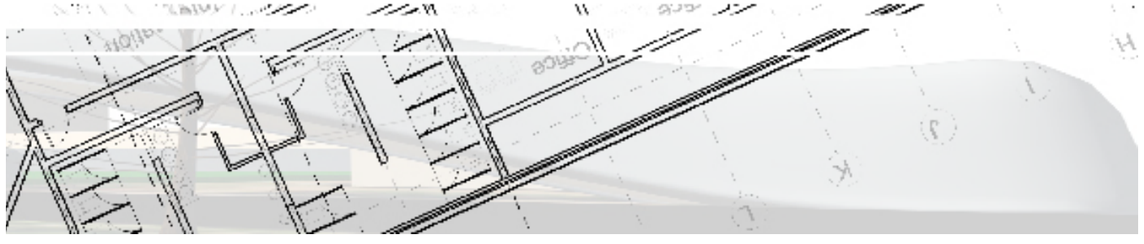
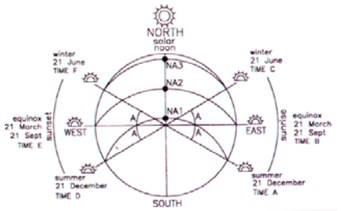


Fig 7.1 Sun Angles of the Global Museum

7.2 Analysis of solar angles

The Analysis of solar angles is crucial to the Global Museum, because if direct sunlight reaches digital screens, glare will decrease their legibility and can cause physical damage to the expensive screens. However, sunlight is important in some of the public areas, and in the courtyard garden. Surfaces on which sunlight does fall have matt finishes to prevent light reflections.

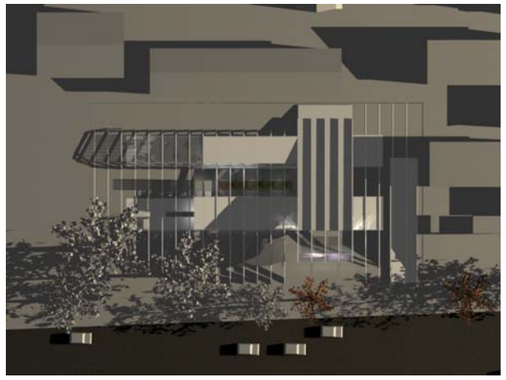
Pretoria has sun agles of 88 degrees in the summer; 40 degrees in the winter; and a 64 degree sun angle at the equinox. ((NAPIER A.2000:Section 4)



PLACE LATITUDE & LONGITUDE	SUNRISE solar time & clock time TIME A	TIME B	TIME C	SUNSET solar time & clock time TIME D	TIME E	TIME F	ANGLE A	NA1 Noon altitudes of sun summer	NA2 equinox	NA3 winter
DURBAN 30S 31E	05.00 04.56	06.00 05.56	07.00 06.56	19.00 18.56	18.00 17.56	17.00 16.56	28°	83°	60°	36°
CAPE TOWN 34S 18.5E	04.45 05.30	06.00 06.45	07.15 08.00	19.15 20.00	18.00 18.45	16.45 17.30	29°	80°	56°	32°
PORT ELIZABETH 34S 25.5E	04.45 05.05	06.00 06.20	07.15 07.35	19.15 19.35	18.00 18.20	16.45 17.05	29°	80°	56°	32°
JO'BURG & PRETORIA 26S 28E	05.10 05.28	06.00 06.18	06.50 07.08	18.50 19.08	18.00 18.18	17.10 17.28	27°	88°	64°	40°

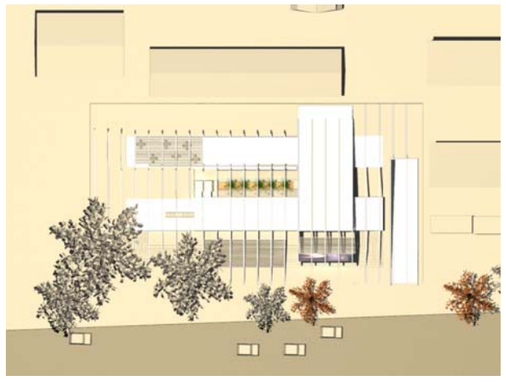
NOTE: ANGLES AND TIMES ARE APPROXIMATE

Fig 7.2 South African Sun Angles (NAPIER A, *Enviro-friendly Methods in small building design for South Africa*:4.5.1)



6:00am

10:00am

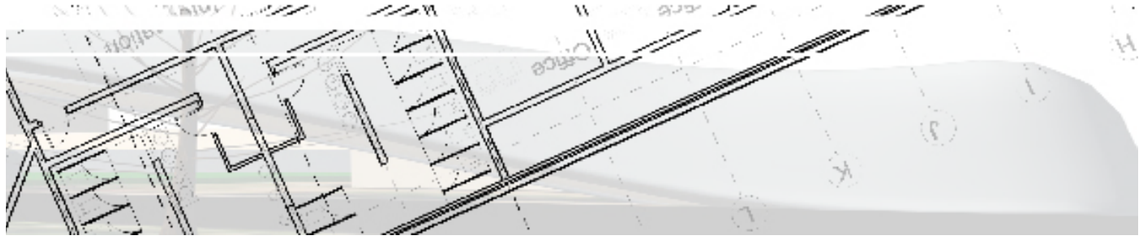


12:00am

2:00pm

6:00pm

Fig 7.3 Shadow analysis of the Global Museum in summer (88deg sun angle).



6:00am

2:00pm

6:00am

2:00pm

10:00am

6:00pm

10:00am

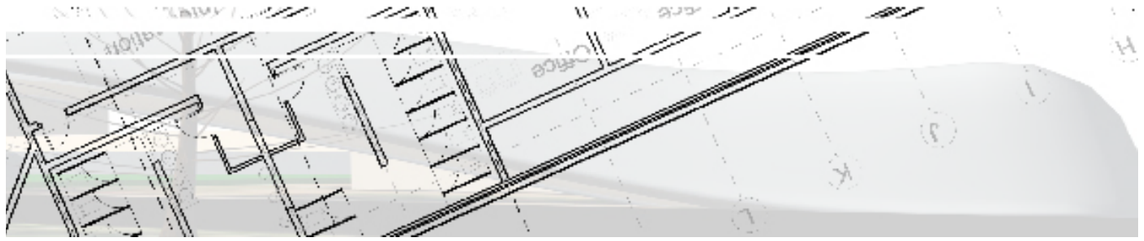
6:00pm

12:00am

Rig 7.4 Shadow analysis of the Global Museum in winter (40deg sun angle).

12:00am

Fig 7.5 Shadow analysis of the Global Museum at equinox (64deg sun angle).



7.3 Water Drainage (Fig 7.6)
Like sun analysis, water drainage of the Global Museum is of the utmost importance to ensure the safety of the many electronic devices that make up a large part of the building. Pretoria is within the Temperate Eastern Plateau of South Africa, experiencing 125mm to 375mm rainfall in summer and 62mm to 250mm rainfall in winter, and has a 30% to 50% relative humidity. (Napier A.2000:Section 9)

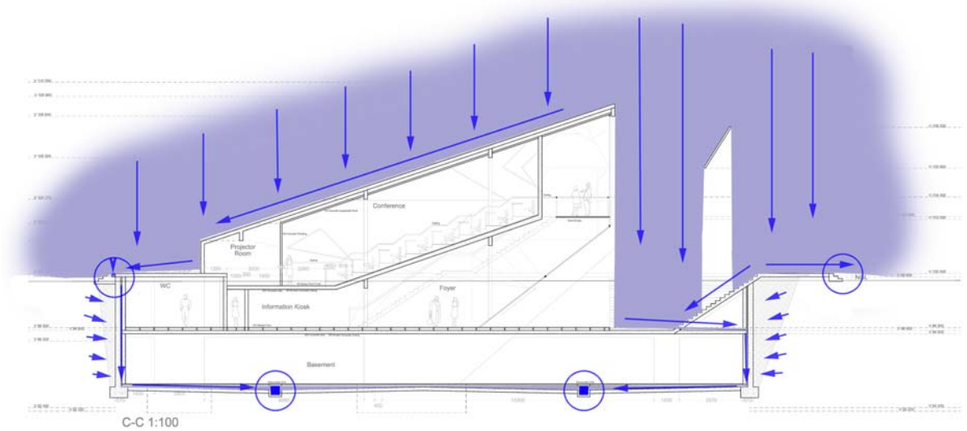


Fig 7.6a Water Drainage - Section C-C

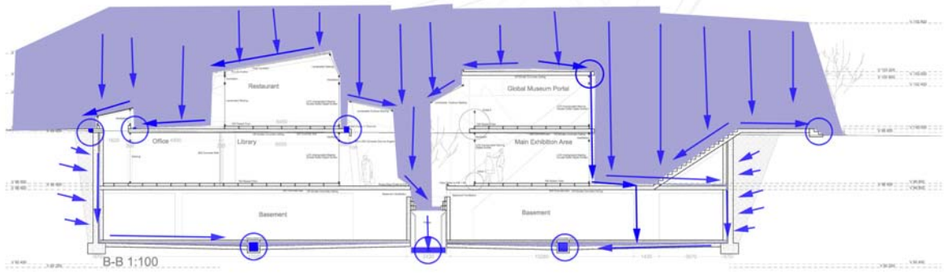


Fig 7.6b Water Drainage - Section B-B

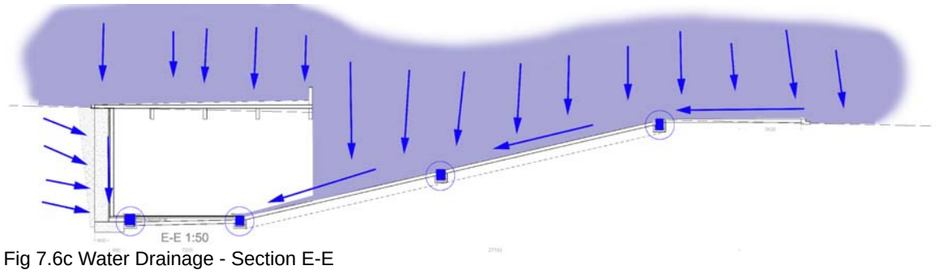


Fig 7.6c Water Drainage - Section E-E

7.4 Fire Escape Routes

Escape Regulations concerning two to three story buildings:
If the fire escape distance to the nearest escape door does not exceed 45m the route does not need to be equipped with a emergency escape route. (SABS 0400.1990:181)

If the fire escape distance to the nearest escape door does exceed 45m the route needs at least two different fire escape routes. These two escape routes needs to be independent from each other. (SABS 0400.1990:181)

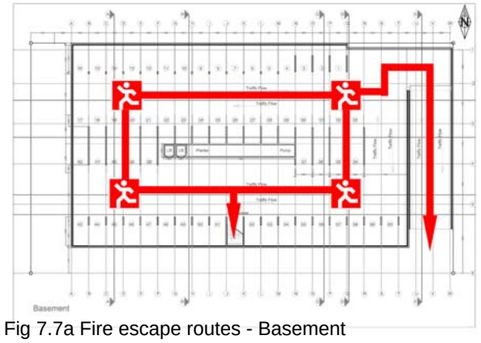


Fig 7.7a Fire escape routes - Basement

Fig 7.7b Fire escape routes - Level 1

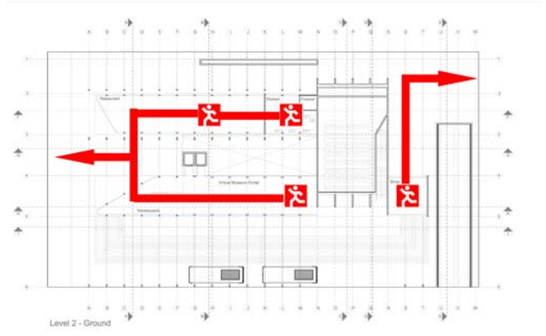


Fig 7.7c Fire escape routes - Level 2_Ground

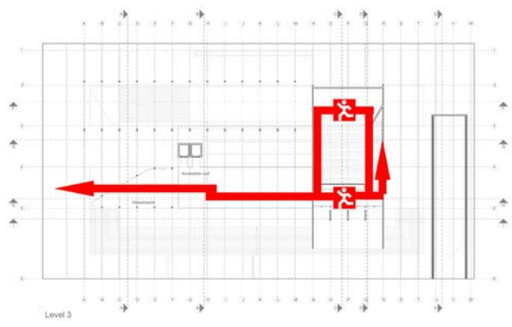
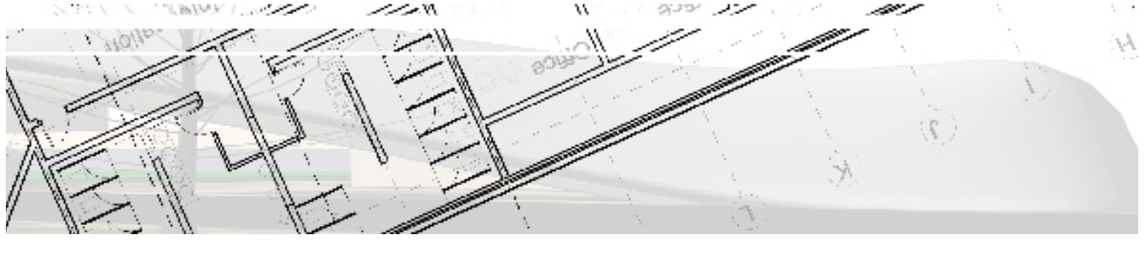


Fig 7.7d Fire escape routes - Level 3



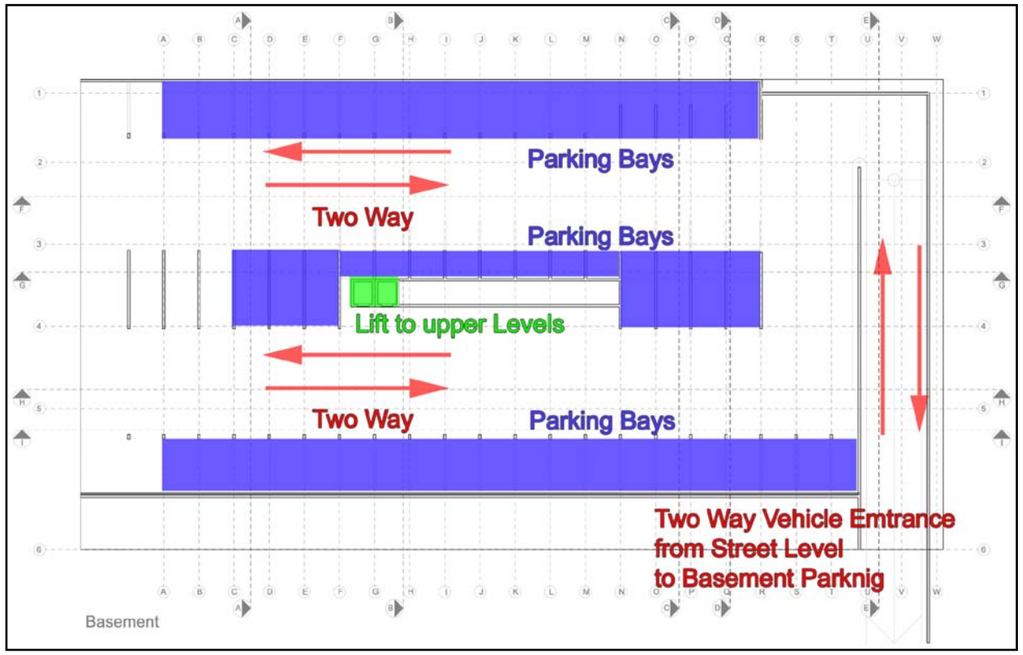


Fig 7.8a Museum Circulation Map - Basement

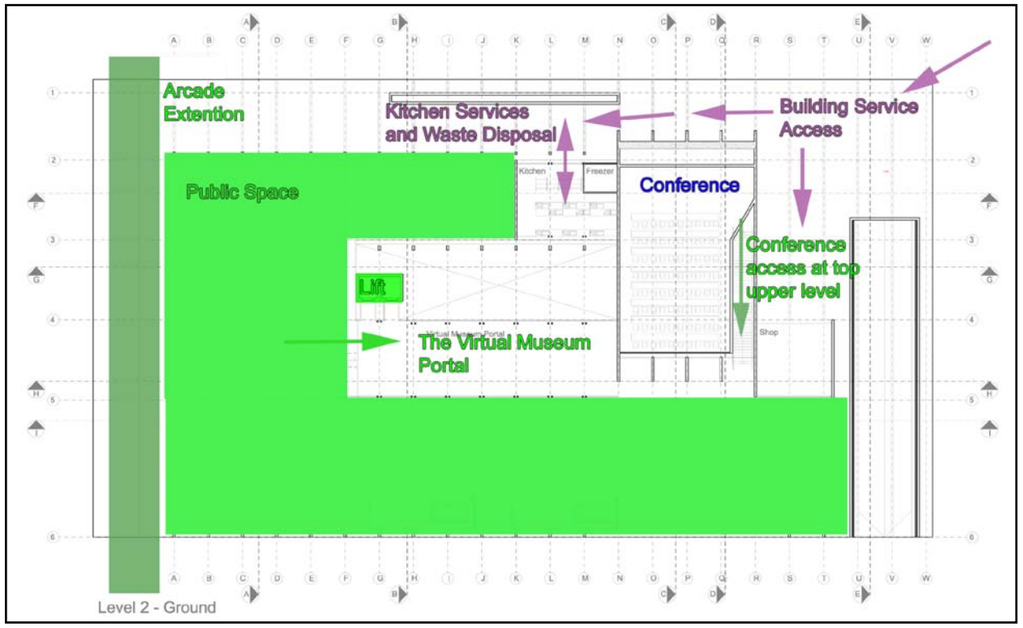


Fig 7.8c Museum Circulation Map - Level 2

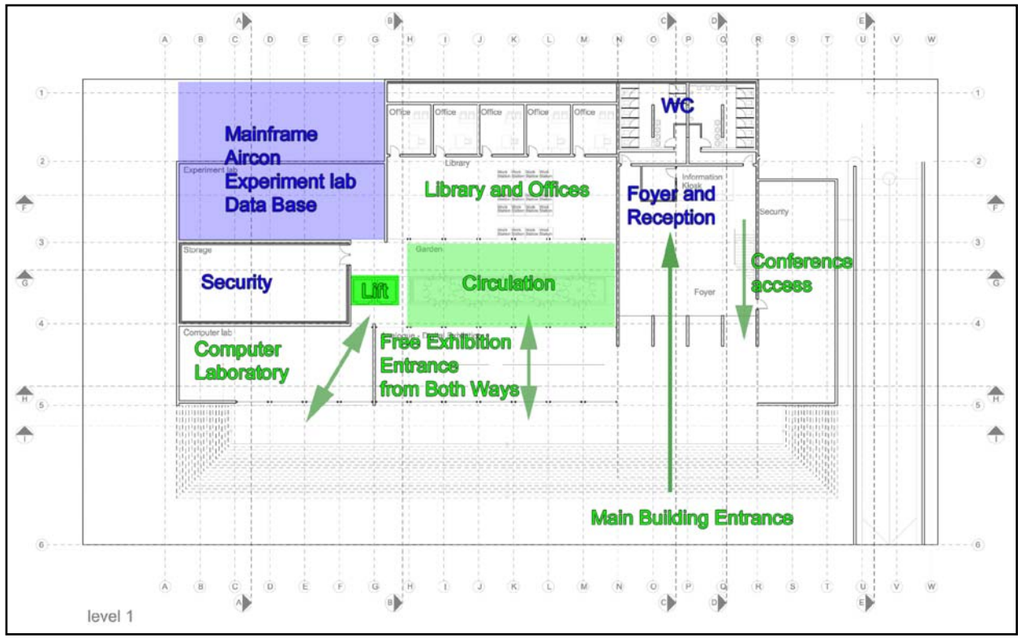


Fig 7.8b Museum Circulation Map - Level 1

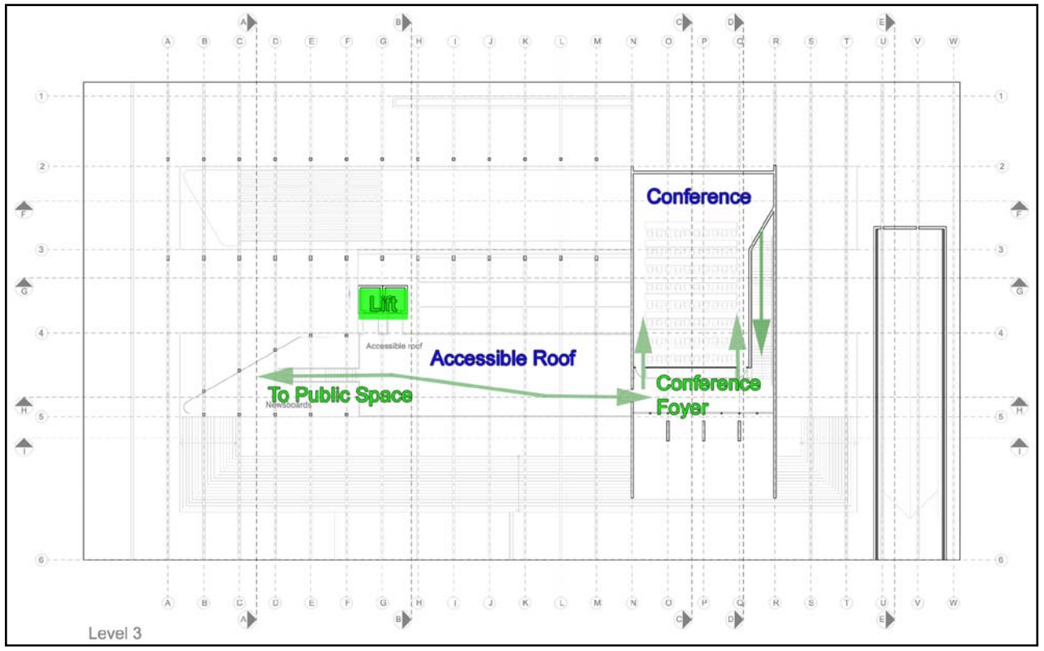
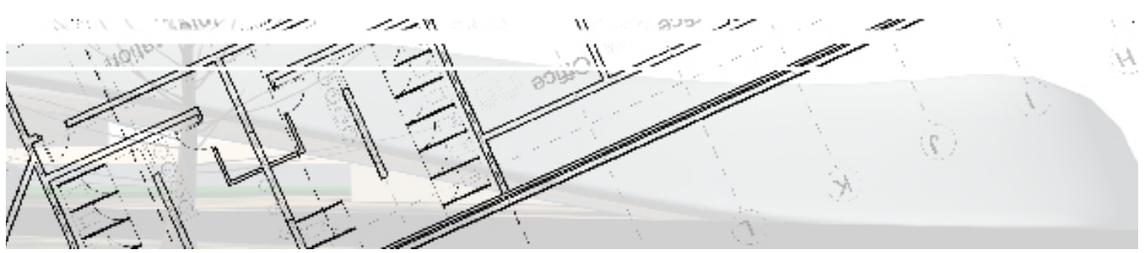


Fig 7.8d Museum Circulation Map - Level 3



8. Conclusion

This study starts by defining the museum in general and identifying what the South African museum is. Then, it attempts to identify the international standards of museum design that are currently developing, and to identify the element missing within the South African museum. Then follow precedent studies of museums which contributed to the concepts of the currently developing museum model. Digital culture is introduced, and finally the brief for a contemporary museum which is currently in the development process is closely examined. The design of the proposed Global Museum was an attempt to incorporate that element missing from South African museums by using contemporary museum concepts.

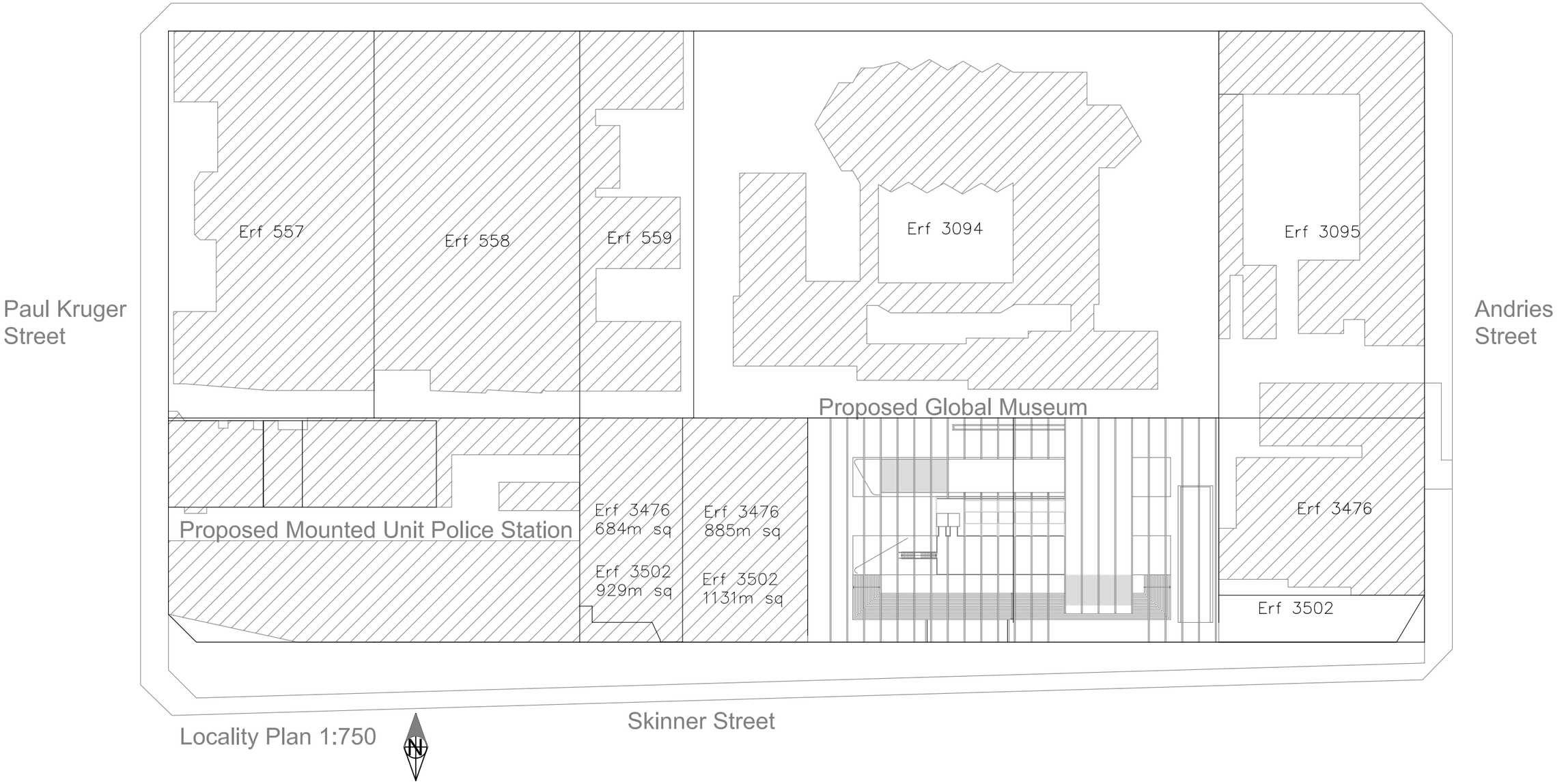
The proposed Global Museum is ultimately highly technology driven. It used technologies that are still currently developing. Thus it would only be possible to build it successfully in the near future.

The study hopefully indicates that far too often designing with the digital tends to run away from reality and even seems to get out of control due to the lack of gravity and physics, and thanks to the visual qualities that computer software creates, but the design process in the end seems to originate much more in the designer than in the medium he/she uses. It is stated in the introduction that the design should incorporate soft contours as a metaphor for the digital and that the proposal shouldn't be geometrical like its predecessors. The proposed Global Museum is however very geometrical for functional reasons. The same can be said for some of Diller and Scofidio's designs which this study uses as precedents. Perhaps a deeper study is needed into Diller and Scofidio's work to see what makes their designs so innovative.

This study hopefully also indicates that to use conventional museum ideas to design or upgrade the current facilities of museums dooms such museums from the start. Using virtual means, however, only creates representations of the real and can never replace the physical artifact. Virtual unities of artifacts should only be considered if their physical unity is impossible.

For centuries, museums and libraries were perhaps some of the largest information sources available. Today the internet meets most of that need and museums should incorporate this highly developed communication system into their own systems. The proposed Global Museum perhaps represents the ultimate of this ideal and gives very little attention to the physical artifacts which museums are usually expected to house.

9. Technical Drawings



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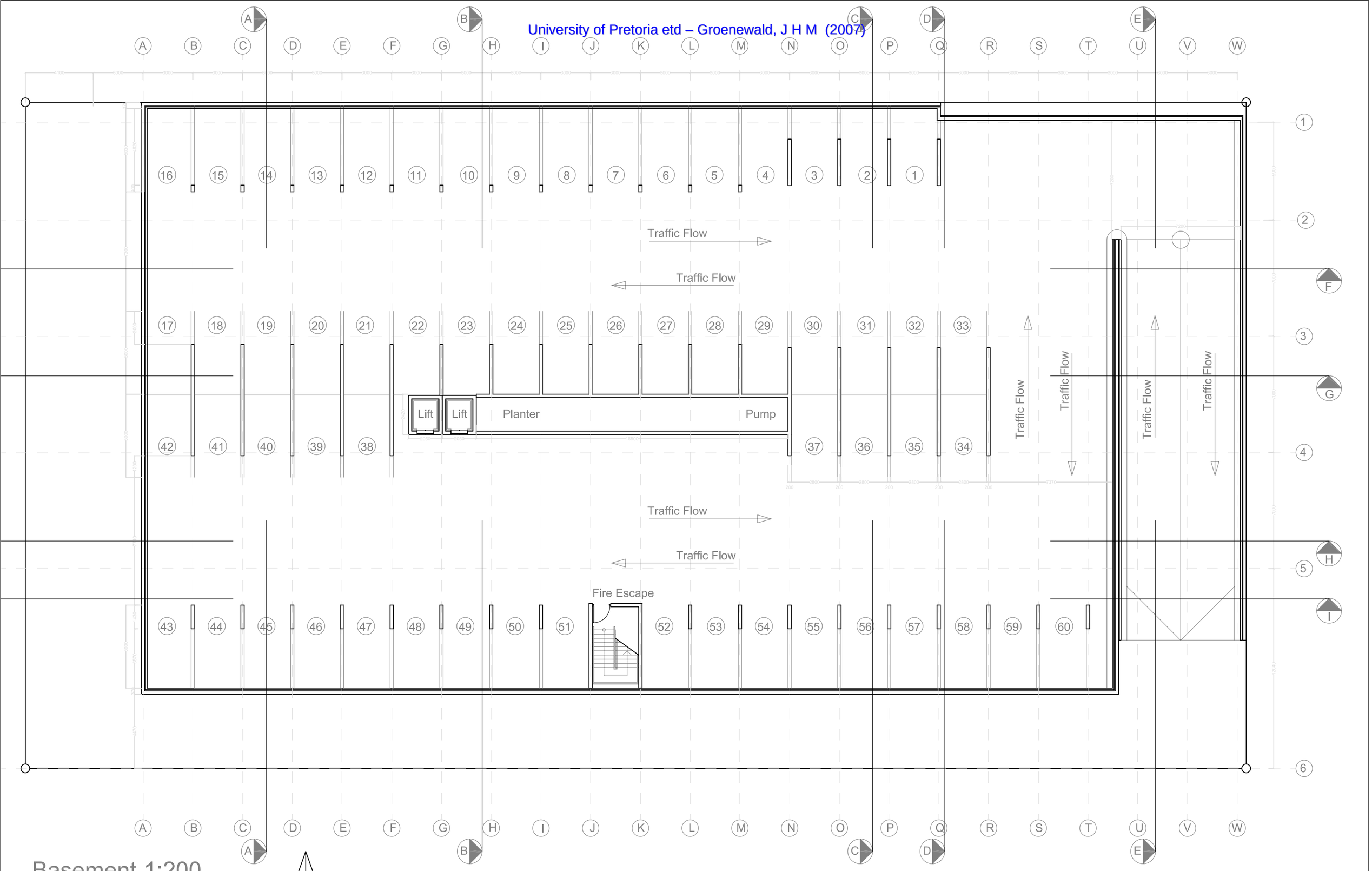
Global Museum	609 Skinner Street, Pretoria
	South Africa
M.Arch (Prof)	University of Pretoria



Basement 1:200

N

2 500 2 500 5 000 5 000 5 000 5 000 5 000

10 000 20 000

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Mainframe,
Air conditioners,
Experiment lab
and Data Base
Fibre-optic
Internet Connection,
Server Room
& Electricity Grid

Conference Room

Ventilation and Light Shaft

Office

Office

Office

Office

Office

Library

Work Station

Reception

Security Gate

Garden

Security

Lift

Lift

Planter

Analogue - Digital Exhibition

Security Gate

Reception

Computer lab

Security Gate

WC
hers

WC
his

Information
Kiosk

Latch

Service Lift

Storage

Foyer

Double Volume

Double Volume

level 1 1:200

N

2 500 2 500 5 000 5 000 5 000 5 000 5 000

10 000 20 000

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Outside Eating Area
Restaurant
Service Access
Refuse
Storage
Freezer
Vegetable Preparation
Kitchen
Wine, spirits beer and minerals
Stoves and Ovens
Washup
Preparation desk
Detail 1a & 1b
Projector room
Conference
Curtain
Curtain
Service Lift
Storage
Public Square
Lift
Lift
Double Volume
Virtual Museum Portal
Entrance
Shop
Double Volume
Newsboards
Hand Rail
Landing
Landing
Stramp
Hand Rail
Landing

Level 2 - Ground 1:200

2 500 2 500 5 000 5 000 5 000 5 000 5 000
10 000 20 000

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Louvre System

Lift

Lift

Accessible roof

Newsboards

Landing

Landing

Conference

Curtain

Curtain

Curtain

Curtain

Curtain

Disabled

1000x1000 Loadbearing glass tiles (armourglass)

Foyer (Conference)

Landing

Level 3 1:200

2 500 2 500 5 000 5 000 5 000 5 000 5 000

10 000 20 000

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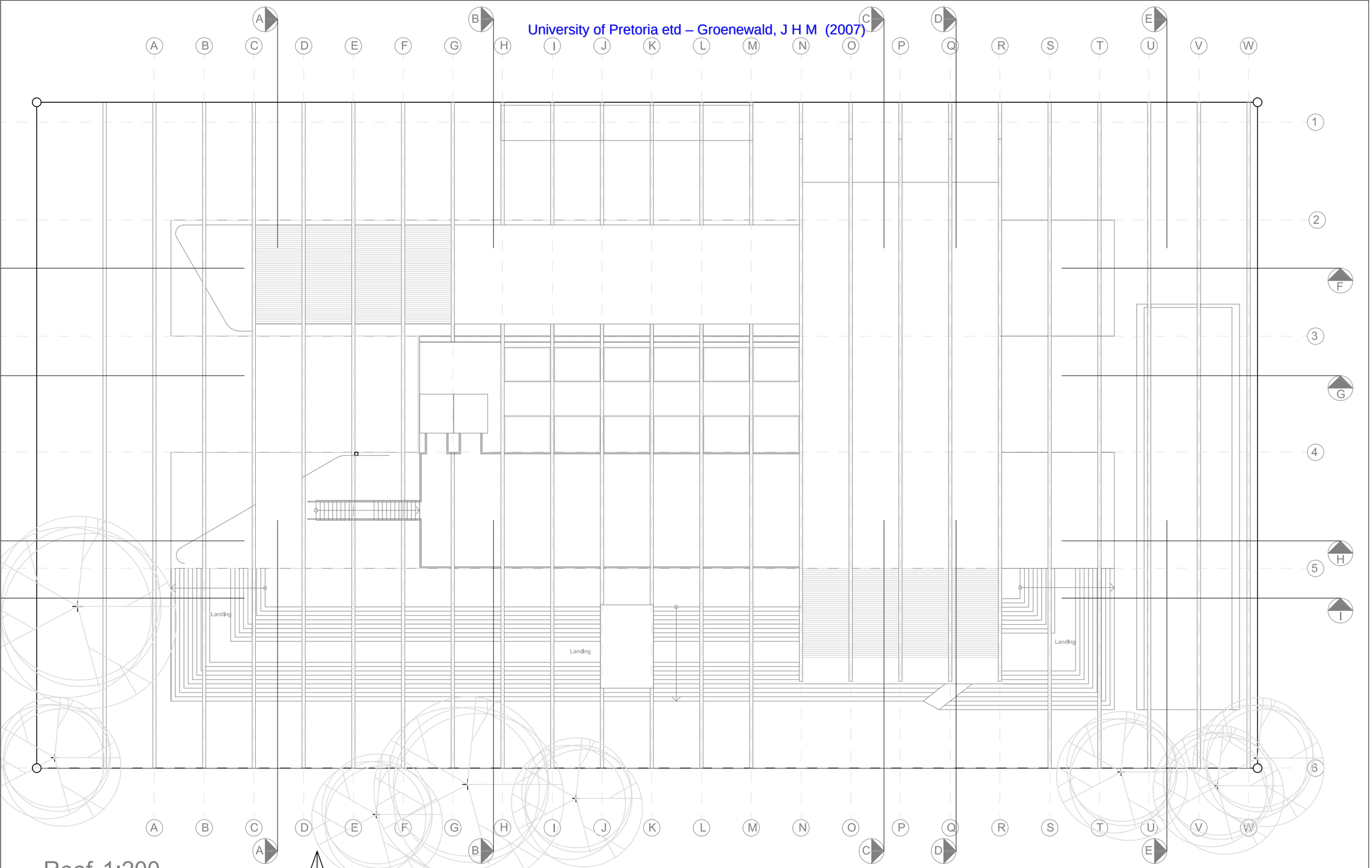

Roof 1:200

N

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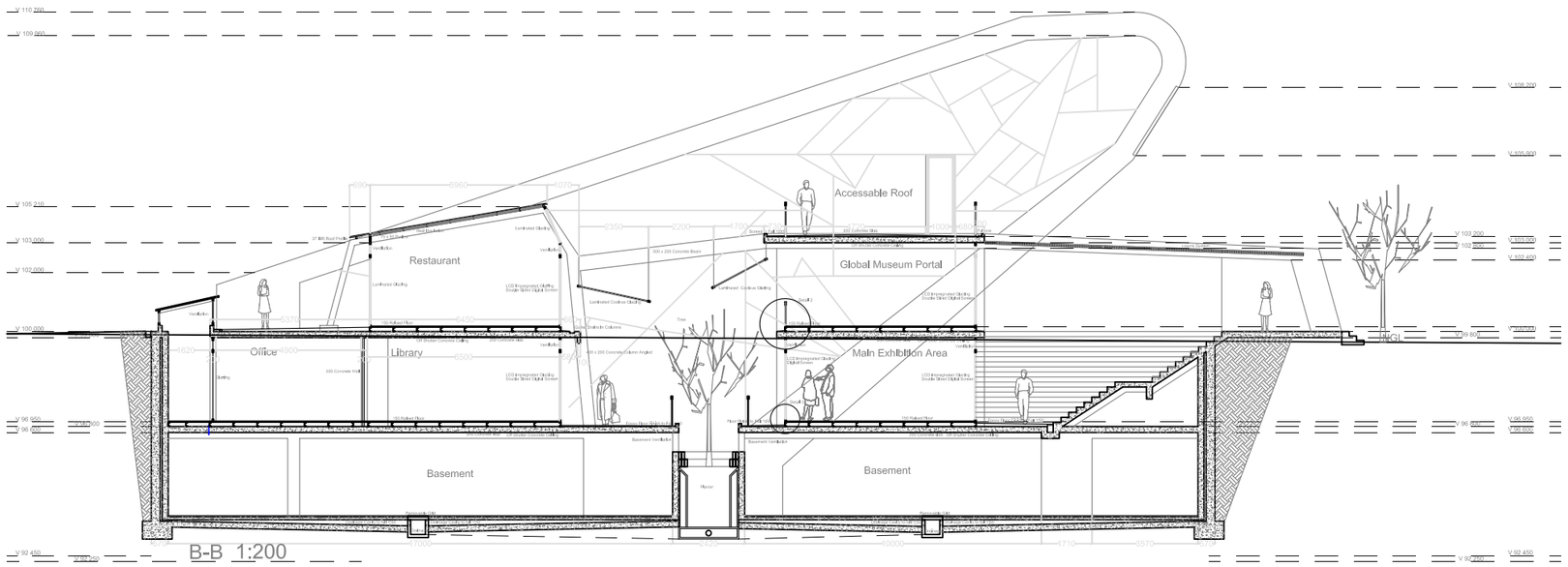
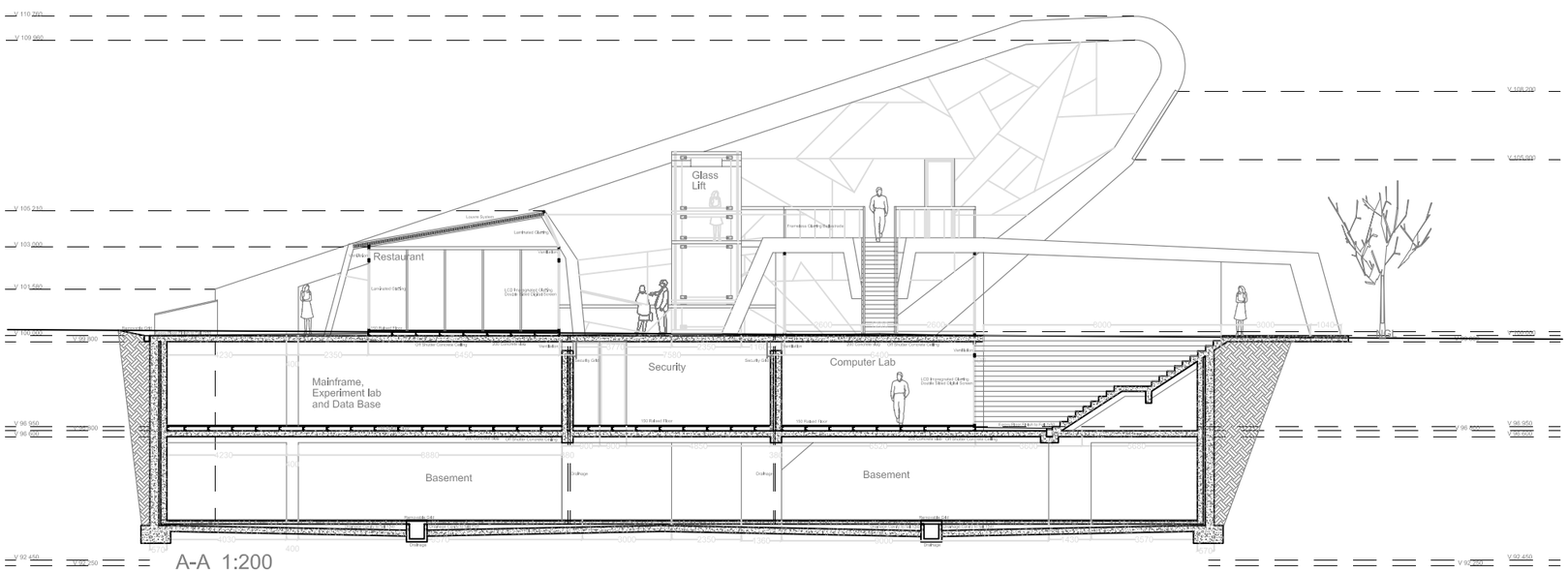
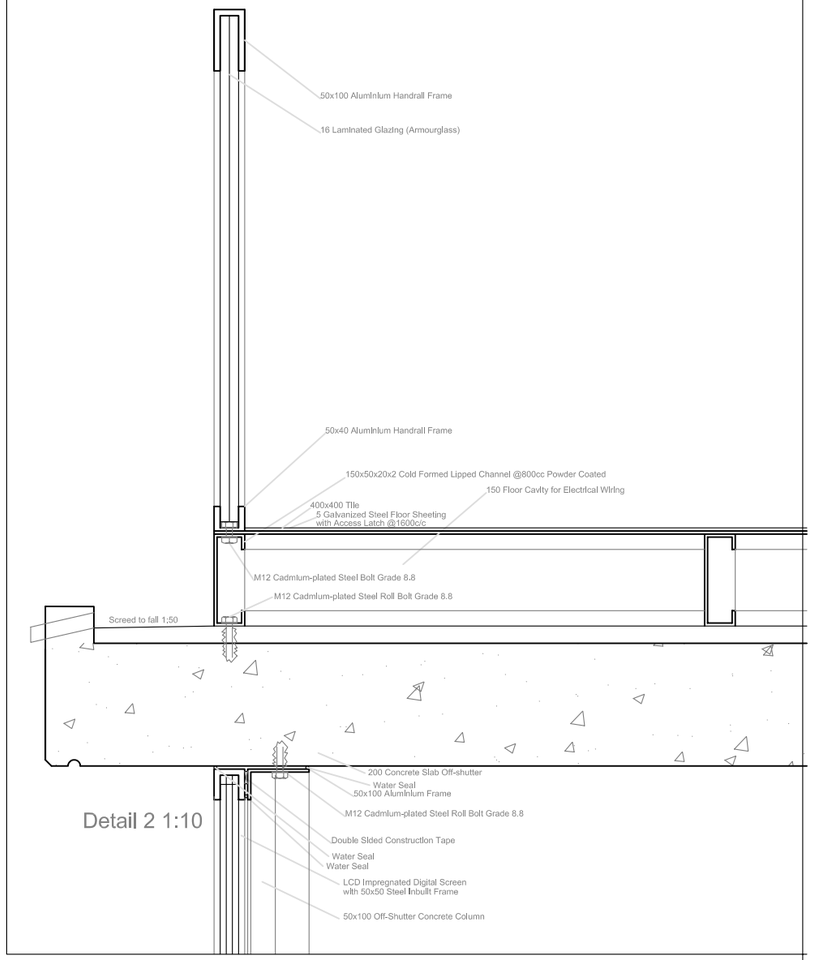


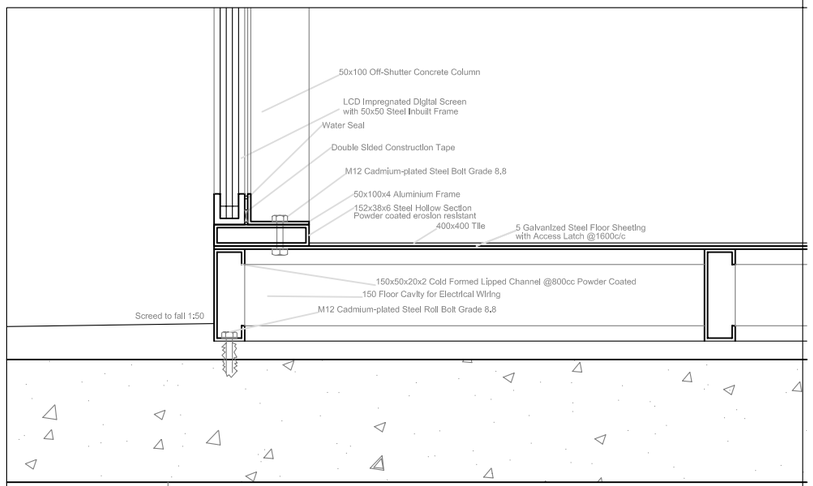
B-B 1:200



A-A 1:200



Detail 2 1:10



Detail 3 1:10

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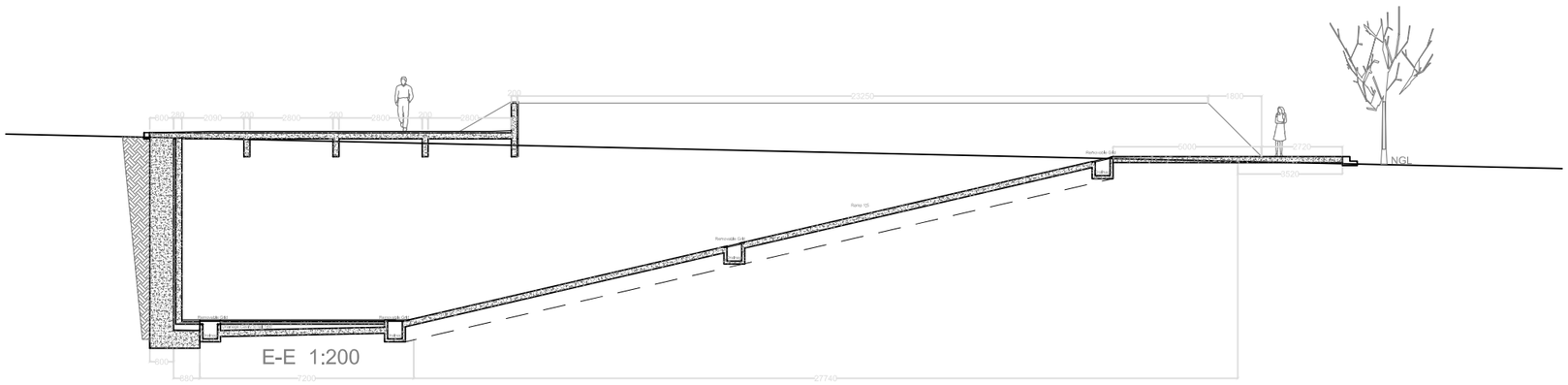
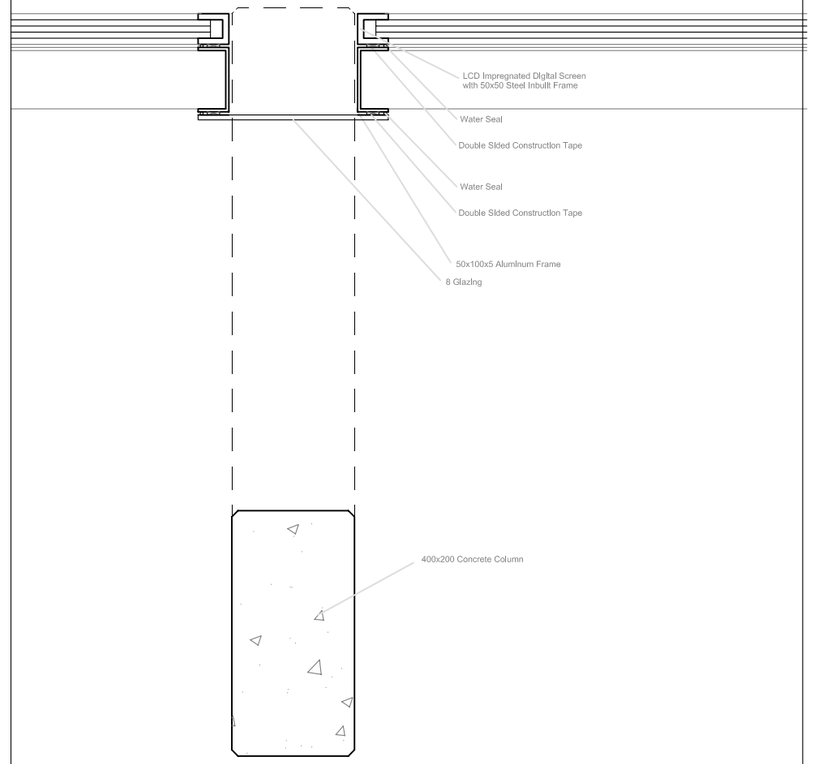
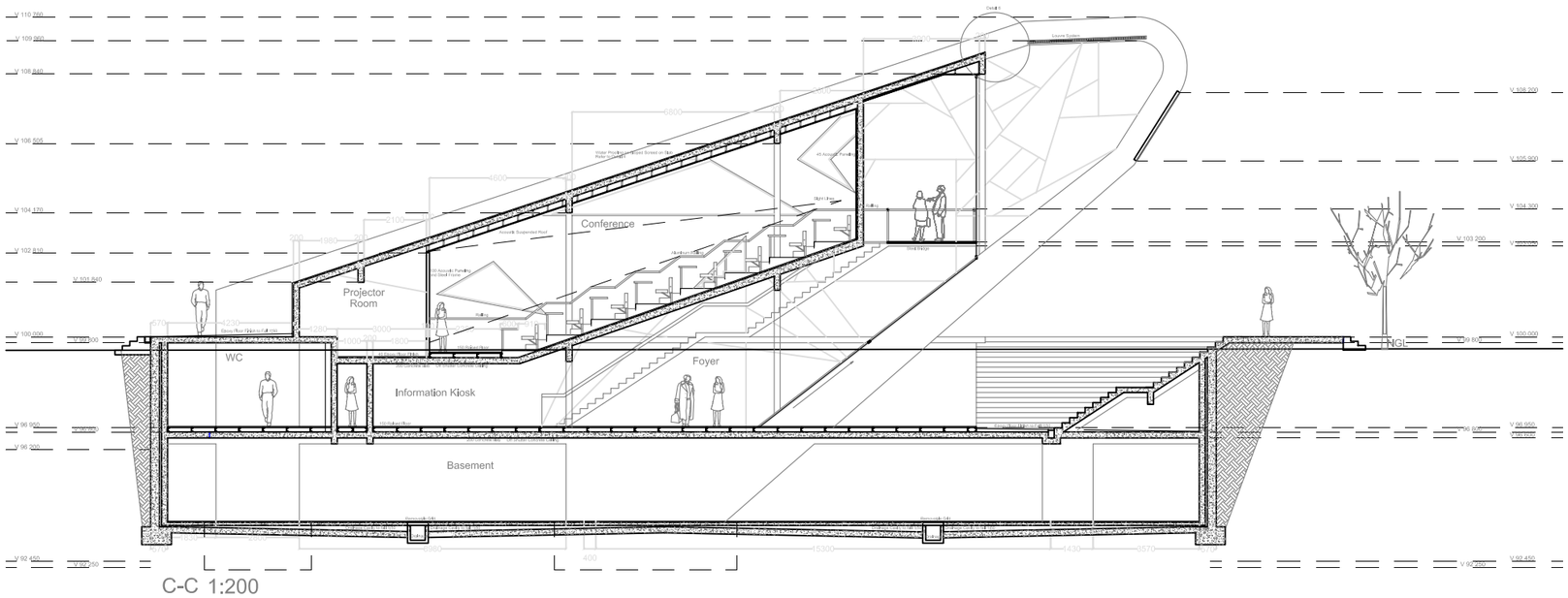


E-E 1:200

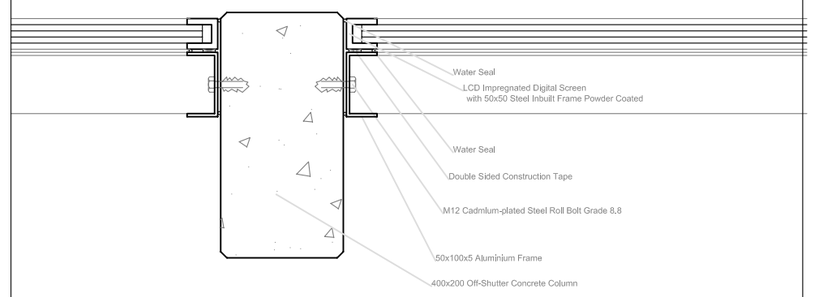
Detail 1a (Eye Level) 1:10





C-C 1:200

Detail 1b (@2500 above ground) 1:10



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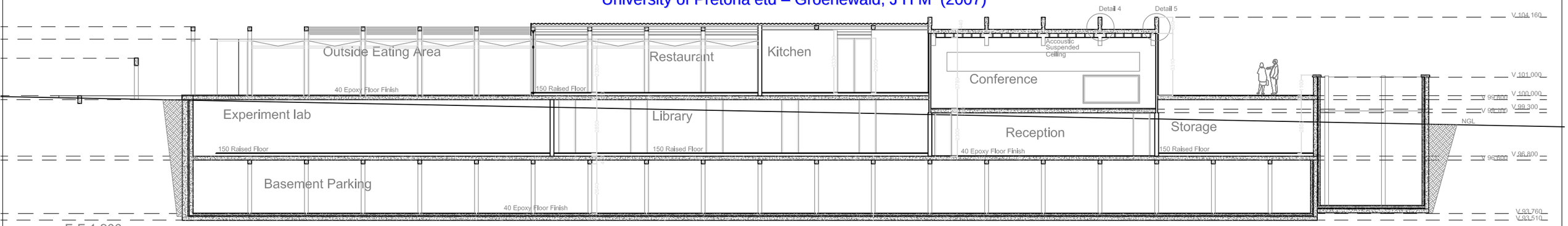
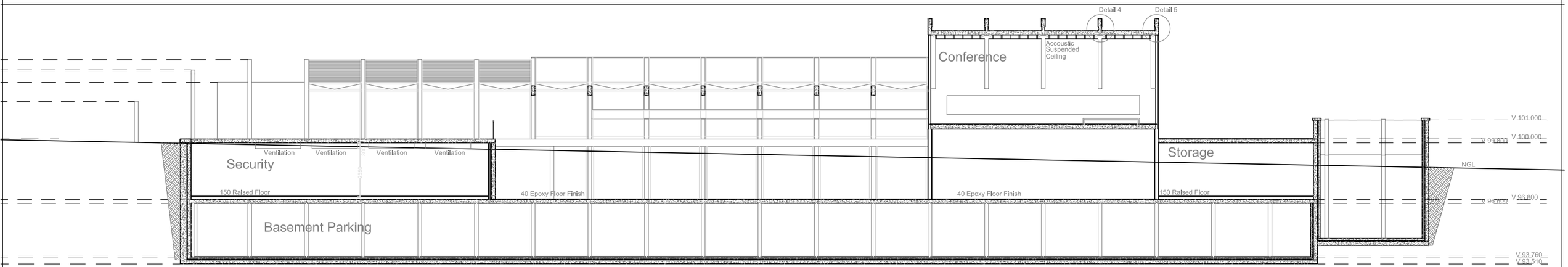
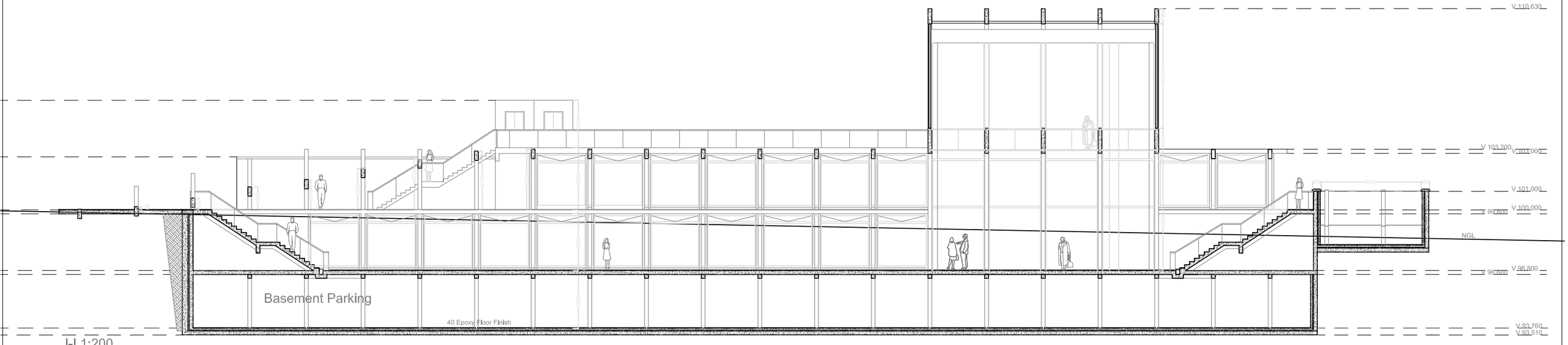


F-F 1:200



G-G 1:200



I-I 1:200

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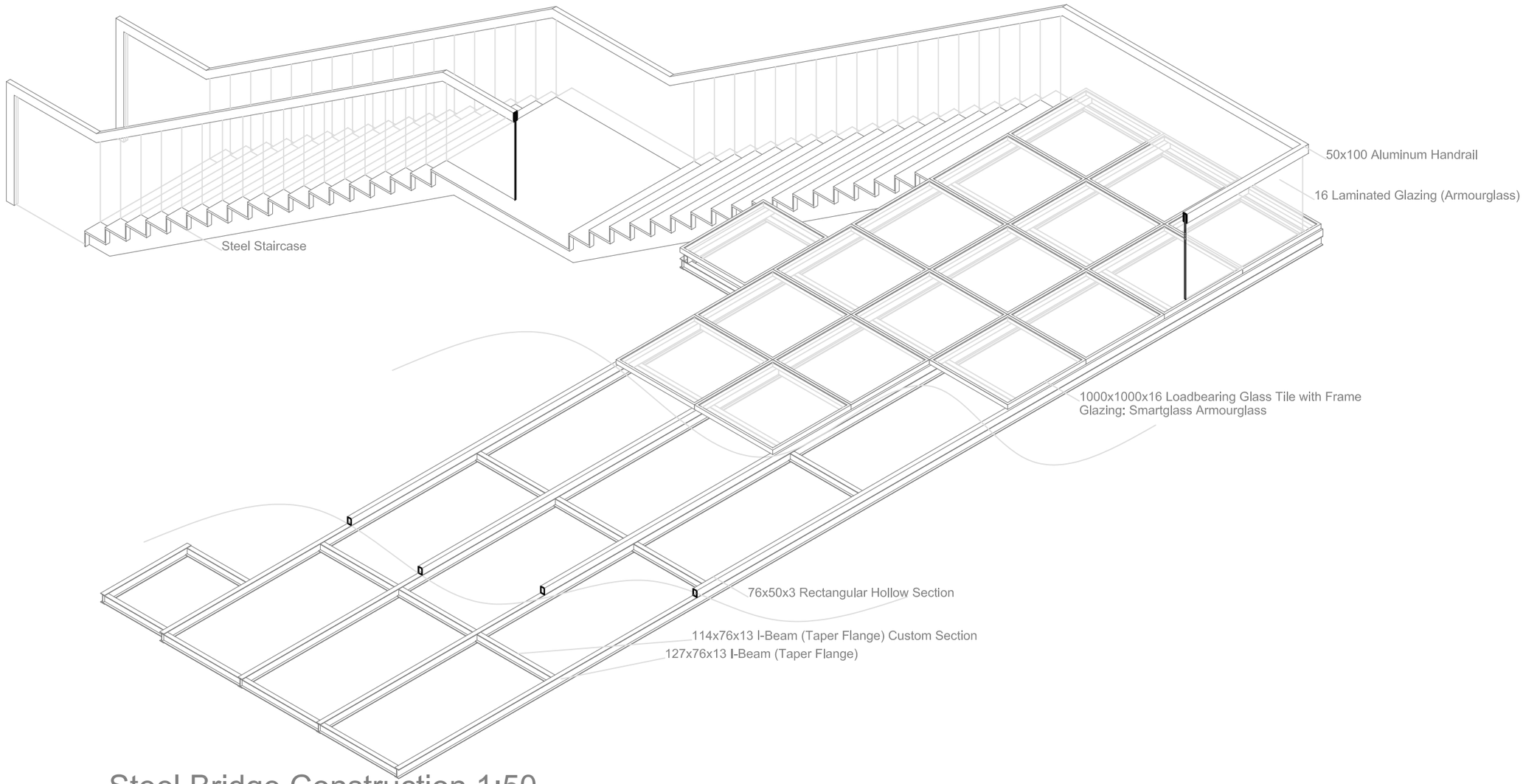

Steel Bridge Construction 1:50

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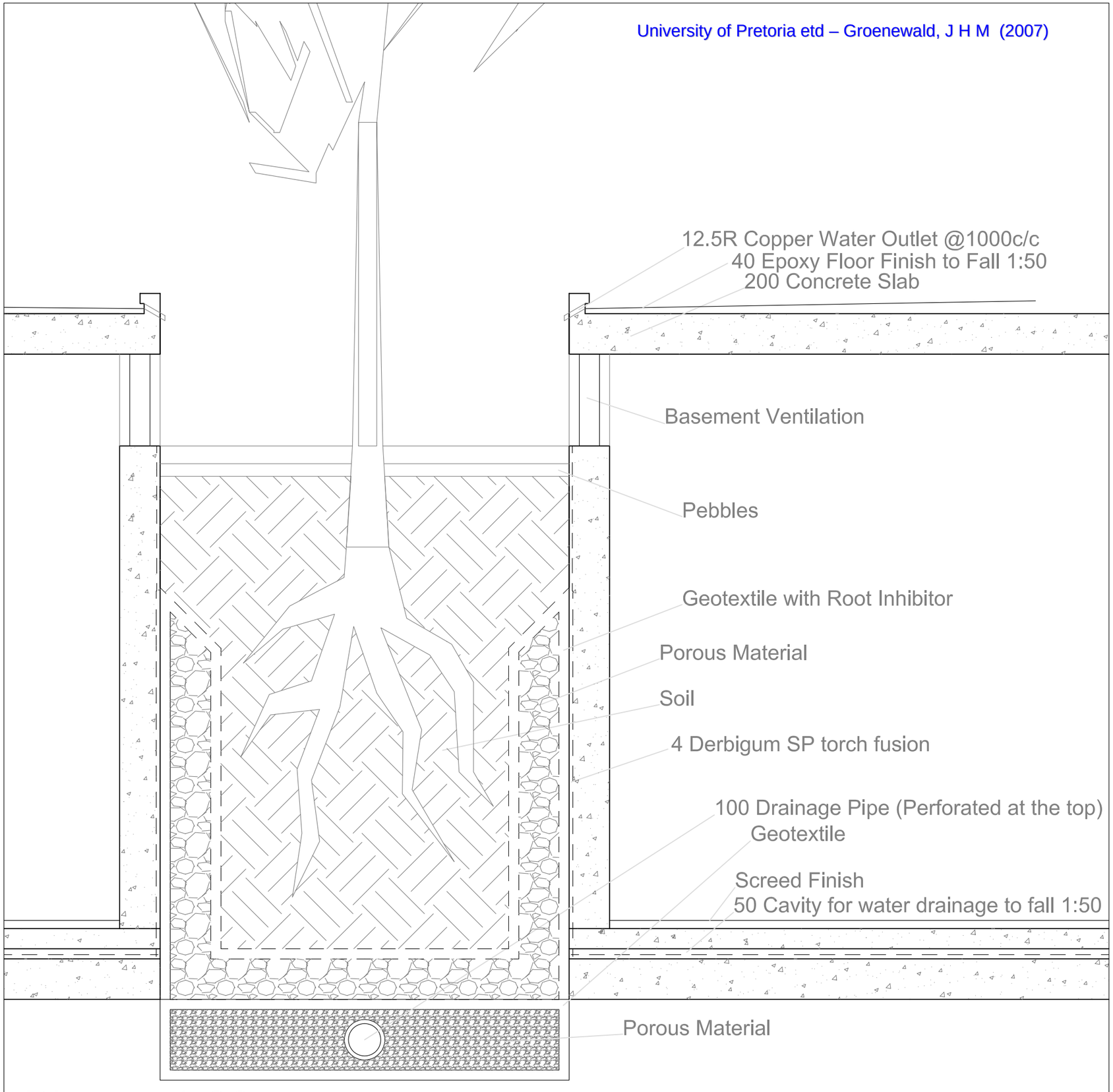
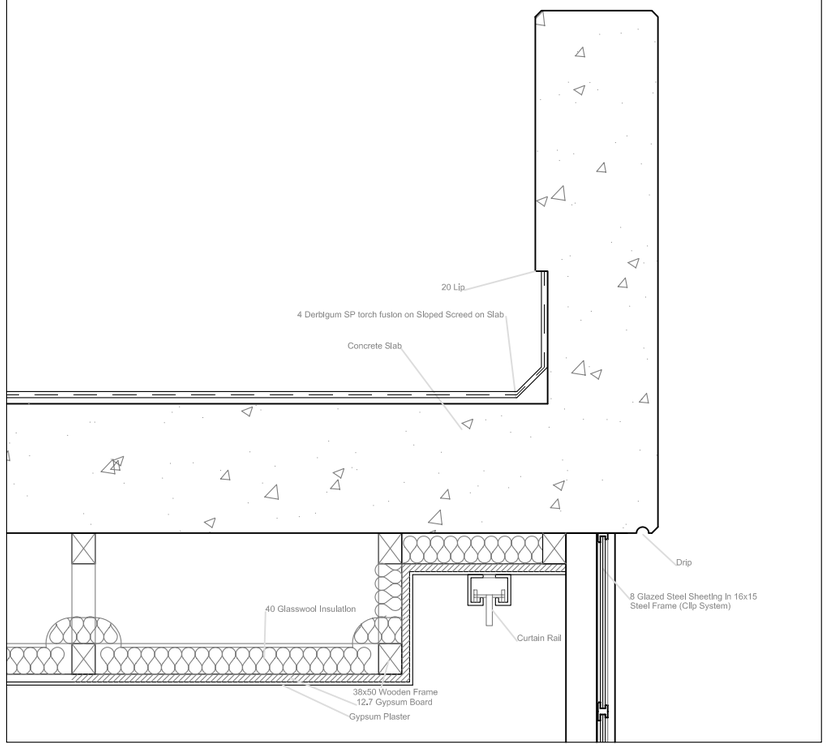
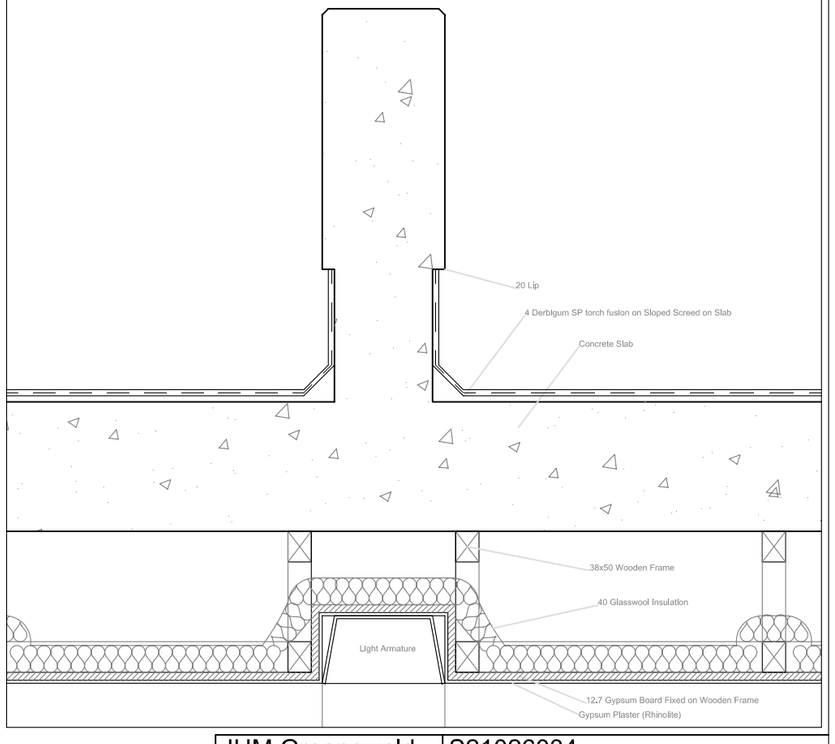


Planter 1:20

Detail 5 1:10



Detail 4 1:10



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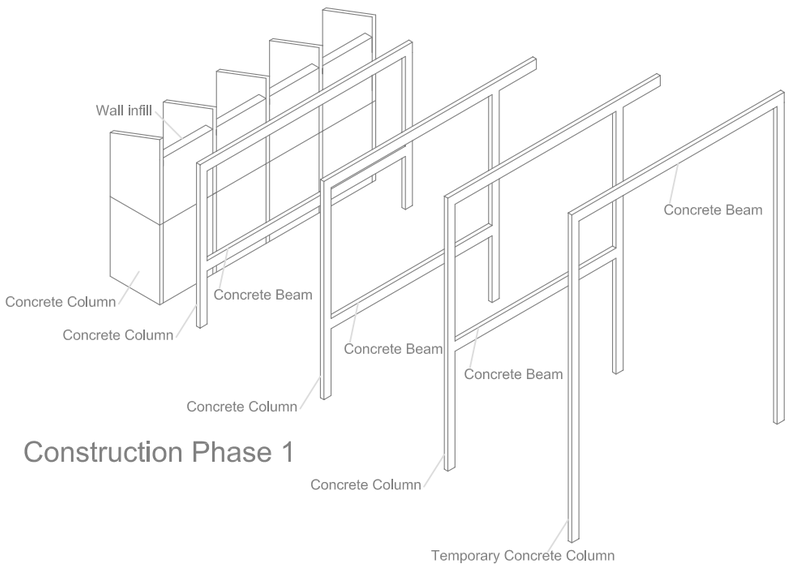
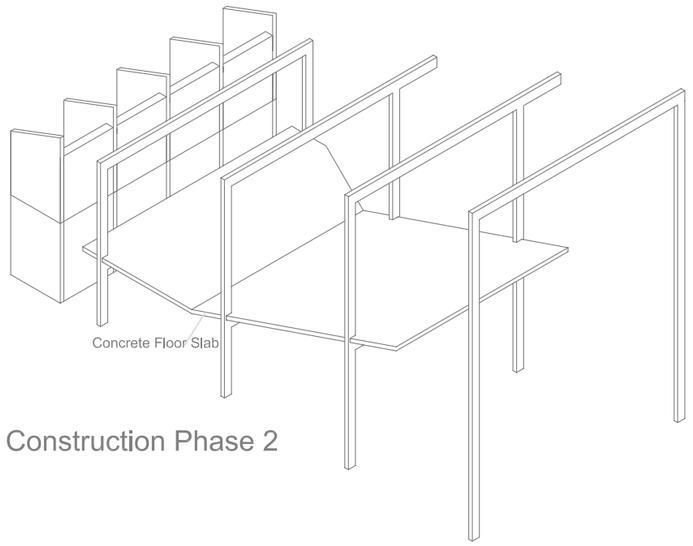
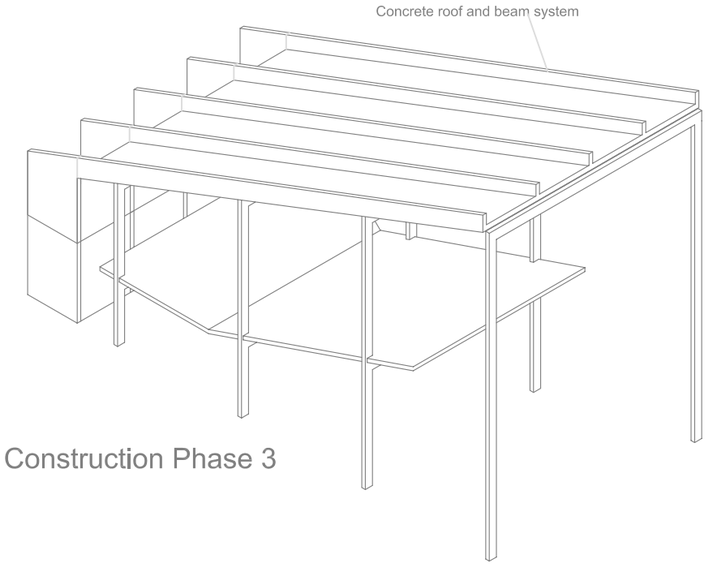


Construction Phase 1



Construction Phase 2



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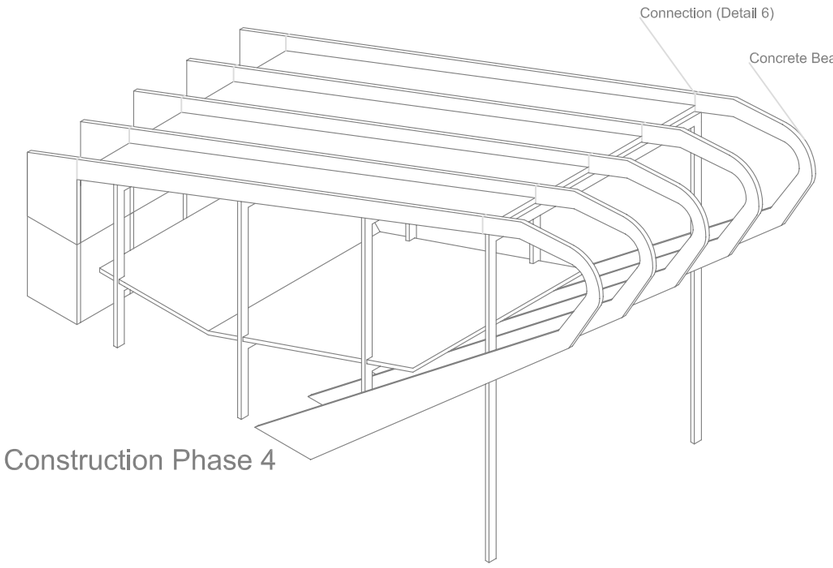

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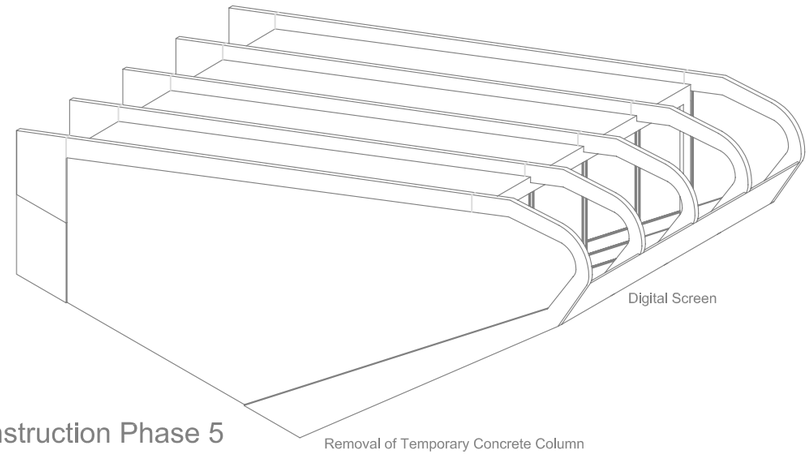

Construction Phase 5

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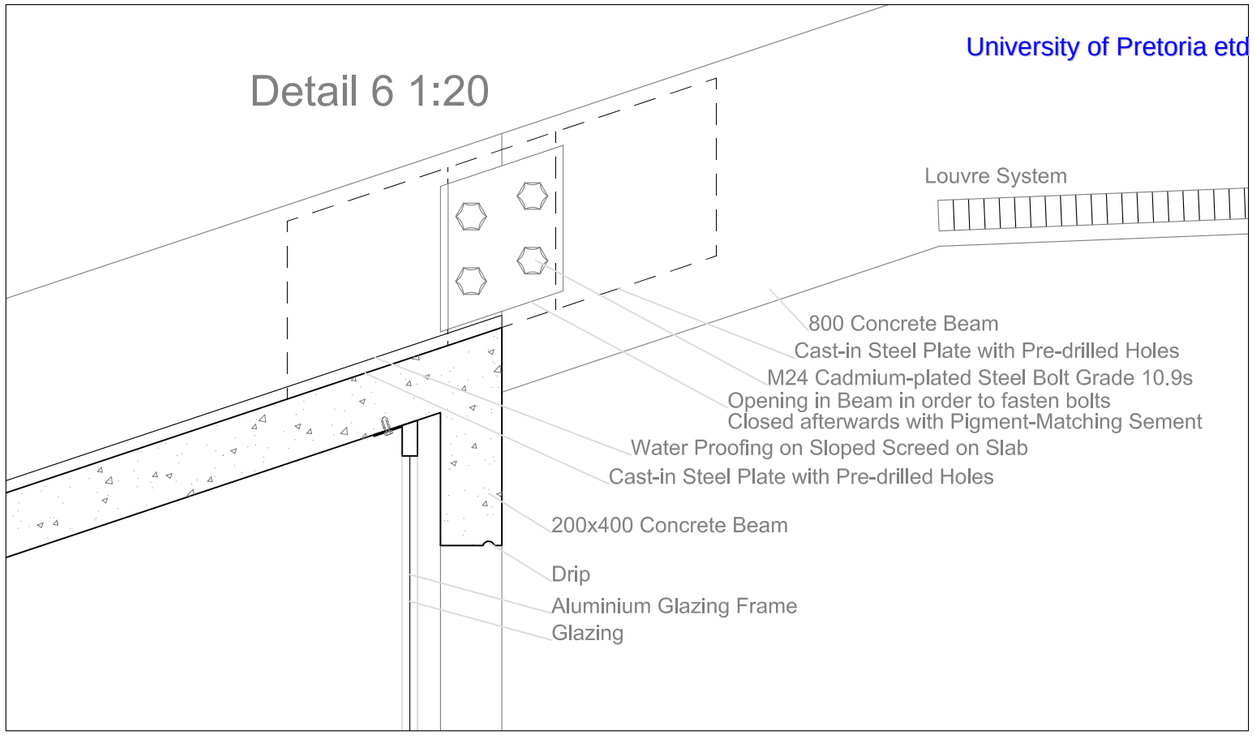
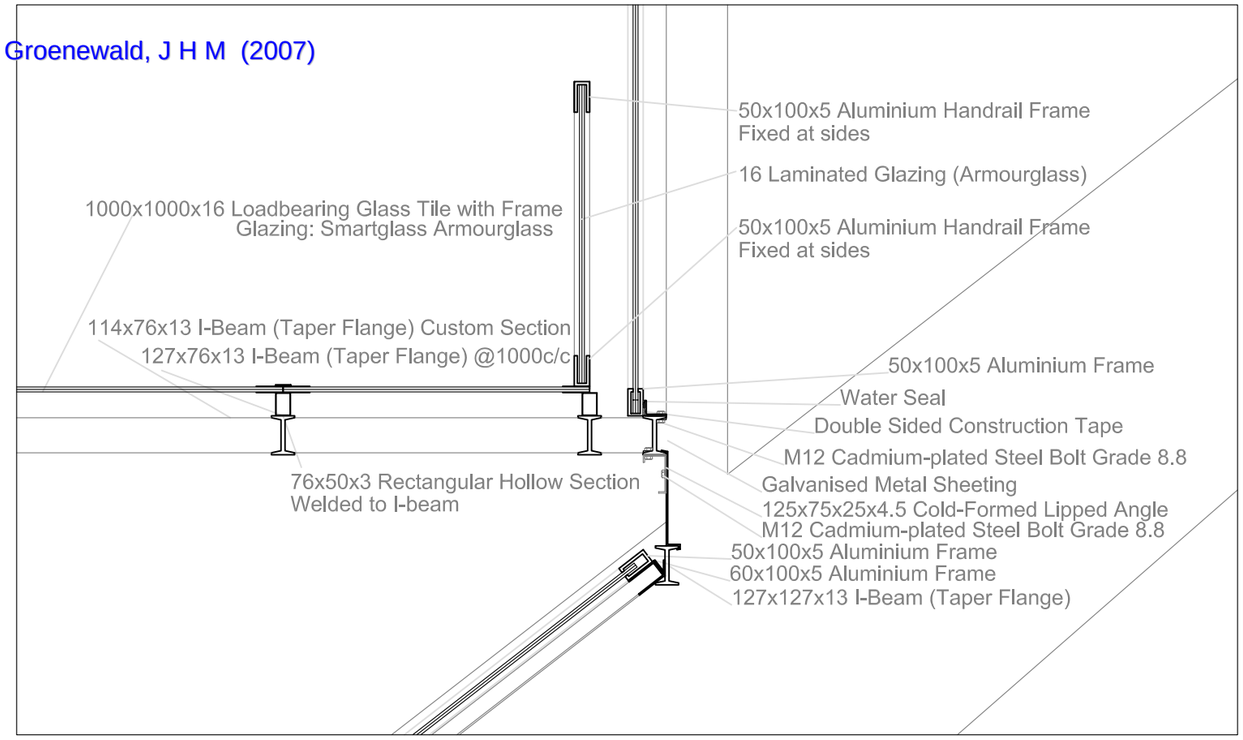
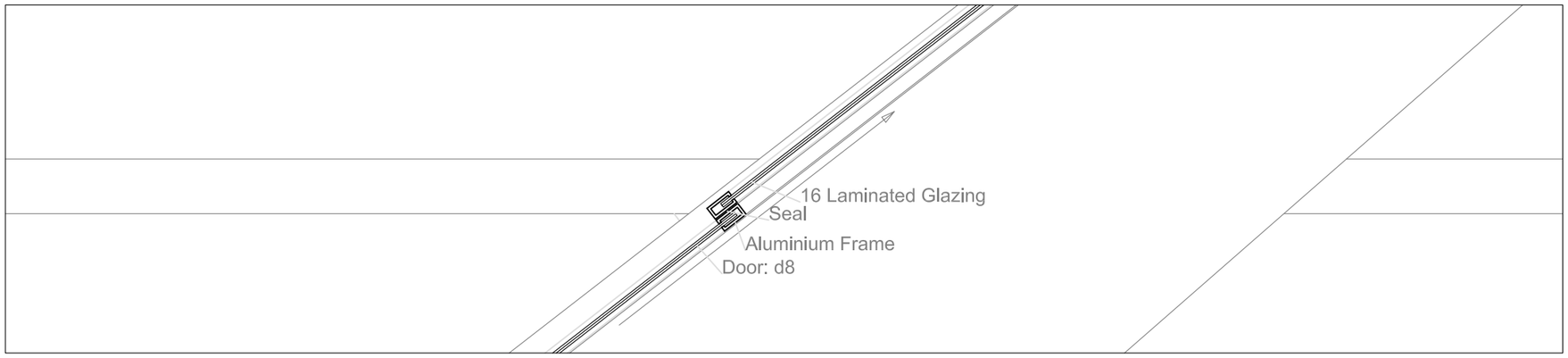
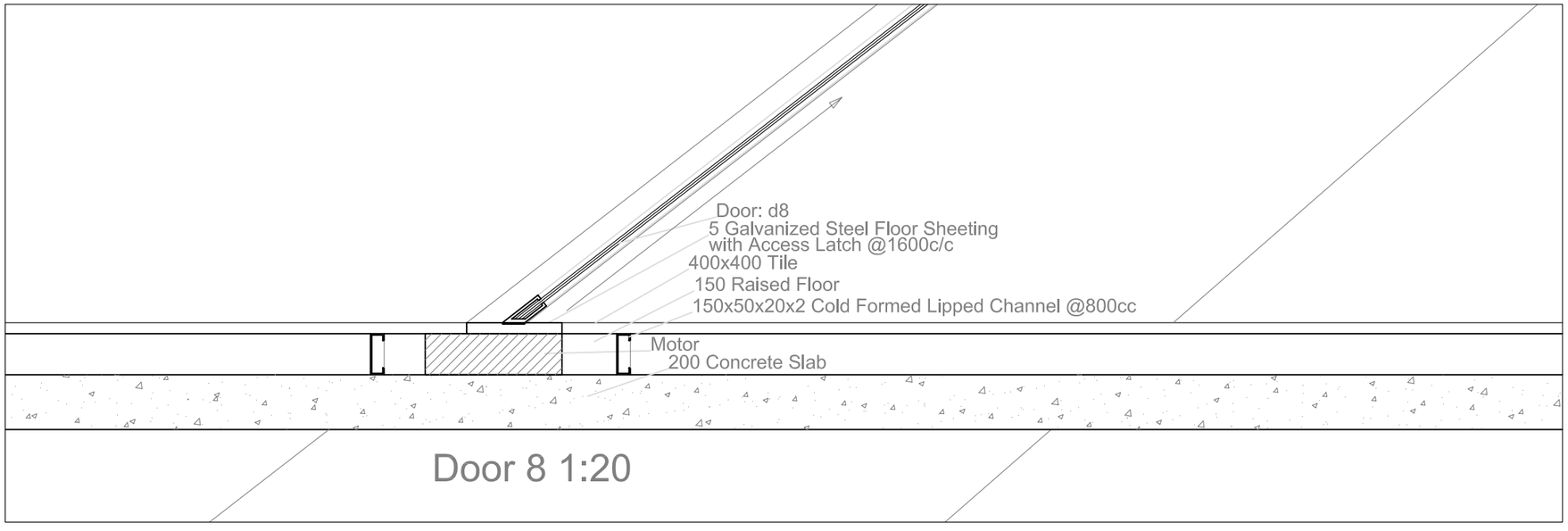
Detail 6 1:20









Door 8 1:20

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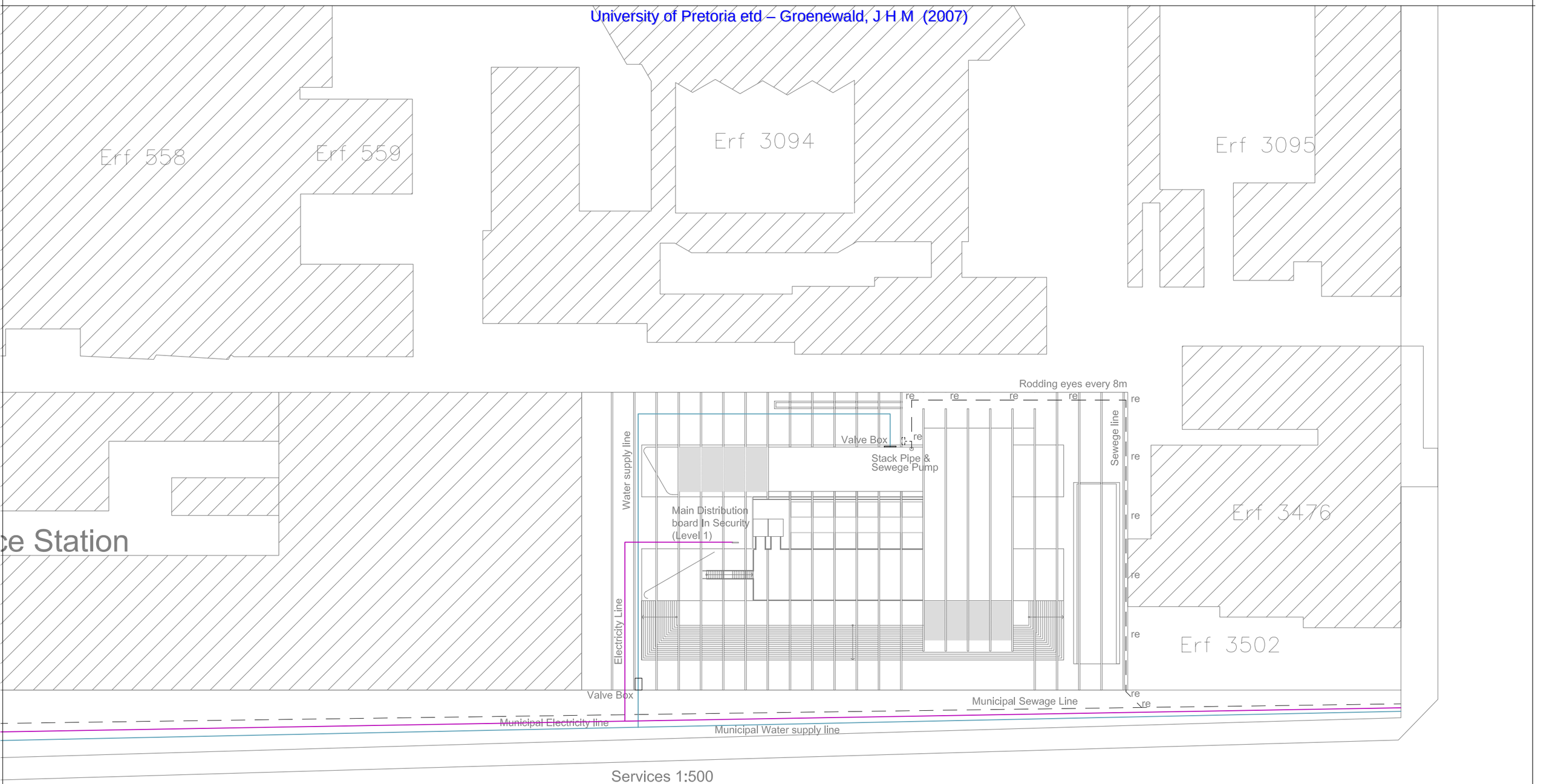

Services 1:500

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visited on 28/05/2006

Special Thanks

My ouers: Tim en Dorothy Groenewald
Chris Groenewald

Derick de Bruyn

Albert Olivier
Markus (Bullet) Meier
Cara Nieuwoudt
Mal Jan
Karlien van Niekerk
All of the University of Pretoria lecturers and staff who aided and contributed to my studies and to this project
All my fellow students

Die Here my God vir al my talente, krag en verstand