“The formation of a global community seems imminent and few traditional cultures have been unaffected. The magnetic pull towards westernization seems stronger than ever and we must remind ourselves, that a loss of a traditional culture amounts nothing less than the loss in global biodiversity”

(Du Toit, 2013: online)
Declaration

I hereby declare that the dissertation submitted for Master Technologiae: Architecture (Applied Design), at the Tshwane University of Technology is my original work and has not been previously submitted to any other institution.

I further declare that all the sources I cited, or quoted, are indicated and acknowledged by means of a comprehensive list of references.

Figure b: Synagogue Onion Dome (Author, 2013)
The Design of a Centre for the Preservation of Cultural Heritage at the Old Synagogue in Pretoria

by

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The

Tshwane University of Technology for financial assistance.

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Design Project Background

The Old Jewish Synagogue on Paul Kruger Street in the centre of Pretoria is the foundation for this thesis project. This heritage building facilitated some of the most pivotal events in apartheid history - the Treason Trial of former president Nelson Rolihlahla Mandela, and the Steve Biko Inquest.

For decades restoration attempts have not been fruitful, due to the costs involved paired with impractical reuse functions for the building and the surrounding site.

This thesis project aims to once again make the Old Synagogue accessible to the public, through suitable incorporation of the building, as well as its site, into the urban fabric. Therefore this document is structured chronologically - as information was acquired through the year, to reach a solution.

Figure 1: Timeline (Author, 2013)
Figure 1.0: Location of Project Site on Aerial Photo of Pretoria City Centre (Author, 2013)
CHAPTER 1
Analysis and Appraisal of Context
1.1. Regional
According to Landau and Gindrey (2008), Gauteng is the primary migration destination for South African, as well as international migrants. This is primarily due to the fact that Gauteng contributes nearly 10% of Sub-Saharan Africa's gross domestic product (GDP). Gauteng houses 42% of South Africa's migrant population. For this reason, many immigrants from diverse language groups are prevalent within the region. 54% of international migrants originate from Africa, most notably from the South African Development Community (SADC) countries.

Pretoria serves as the administrative capital of South Africa and is contained within the City of Tshwane Metropolitan Municipality. The migrants within the city are mainly Zimbabwean (31.7%); Nigerian (18.3%); Democratic Republic of the Congo (5.1%); Lesotho (5.1%); Malawian (3.6%); Angolan (3.6%), Ghanaian (3.4%); and Cameroonian (2.9%) nationals. The main languages spoken in Pretoria are indigenous as shown in figure 1.3. The migrant languages are represented in “Other” (StatsSA, 2012).
1.2. Historic Character of the Inner City

According to Jordaan (1989:26), the grid-iron street layout of Pretoria’s inner city blocks could be attributed to the use of a rigid Cartesian grid. In the article “Pretoria as Urbs Quadrata”, Jordaan argues that the axes were positioned to coincide with the openings in the mountain ranges (1989:26).

Paul Kruger street forms the Cardu, or north-south, axis, terminating in the Daspoort mountain range on the north and the Schurweberge mountain range to the south.

Church street (recently renamed WF Nkomo/Church/Helen Joseph Street) is the Decumanus, or east-west axis. This axis comes to an end at the crossing of the Apies River to the east and the Steenhoven Spruit to the west.

The Steenhoven Spruit and Apies River provided open ducts lining the grid with water. Later, in 1860, a furrow irrigation system from Fountains Valley was introduced, providing the grid with fresh water. (Jordaan, 1989:26)
1.3. Neighbourhood

The proposed site is located on Paul Kruger and Johannes Ramokhoase Streets, where the Old Jewish Synagogue currently remains vacant. In this part of the city the street-interface buildings were placed right on the edge of the street. The furrow irrigation system defined the sidewalk and the Jackaranda trees planted along the streets in 1888, created a natural threshold between the street and the sidewalk. The threshold became more varied when the Panagos Building¹ (circa 1890) were set back five meters from the street edge and the Masada building² (1968) and Princess Park College or Lizawalt Building³ (unknown) were set back nine meters. The result is a historic threshold along the length of the street that is much wider and more varied than the traditional sidewalk.

1 - Architect unkown established by Hendrik Zagt, circa 1890 (Le Roux, 1993:65)
2 - Joubert Owens and Van Niekerk, 1968 (Le Roux 1993:87)
3 - Architects unknown
Tram lines were introduced to Pretoria in 1936, their tracks located down the centre of the street. Circa 1960’s, the tram services were suspended. With information on the reason for this decision being sparse, it is argued that the perception of this system as becoming outdated technology at a stage of increased privately owned vehicles was a big generator. Increased levels of privately owned visitor vehicles is evident in the 1967 freeway scheme devised by the then city engineers, which proposed that highways cut through the existing city fabric.

Figure 1.7: 1967 Freeway Scheme (Jordaan, 1989)
1.4. Immediate surroundings of site

The immediate surroundings of the selected site consist mainly of recently built governmental department buildings, or existing buildings occupied by government departments. Heritage buildings such as the Panagos Building (1890's), Jansen House (1888), the Old Victorian Boarding House, the Old German Club (1993), the Koopkrag Building (1954) and the Woltemade Building (1955) are also located in the vicinity. Museums and other tourist attractions such as Church Square and the National Zoological Gardens line Paul Kruger Street. Informal trade is prevalent in areas with concentrated pedestrian activity. Church square serves as an obstruction to traffic movement and is generally avoided by motorists. The result of current congestion is that the section of Paul Kruger from Church Square to Bloed Street carries a lower vehicular traffic load when compared to the rest of the city. The law fraternity is also located to the south of the site, comprising the High Court (1896) and the Law Chambers (1890-93).

Struben street is termed as “Government Boulevard” in the proposed inner city development framework, suggesting new government buildings be located along this street.

Government Departments

The High Court, Palace of Justice, New Law Chambers, and the Law Society located in the vicinity of Paul Kruger street. This forms the Law Fraternity of the Inner City of Pretoria.

By inclusiveness is meant that in developing a conservation proposal for an urban area a real attempt should be made to include monuments, buildings and neighbourhoods that reflect the history and experience of all communities (MacLachlan, 2009: 2).

Law Fraternity

Historic Fabric

Figure 1.8: Mapping of Surrounding Fabric (Author, 2013)
1 - Architect unknown Commissioned by Mr. Houselighter, 1888
(Le Roux, 1991:22)
2 - Architect unknown
(Le Roux, 1991:19)
3 - Kallenbach Kennedy & Furner, 1933
(indicated by cornerstone)
4 - W.G. Maussmann, 1954
(Le Roux, 1993:18)
5 - W.G. Maussmann, 1955
(Le Roux, 1993:19)
6 - S. Wierda, 1896
(Le Roux, 1992:60-61)
7 - Philip Carmichael & Murray, 1890-93
(Le Roux, 1992:69)
8 - Architect Unknown, 1990's

Figure 1.9: Figure Ground of Context (Author, 2013)
1.5. Current Fabric

Today the Old Synagogue stands deteriorated, almost longing for a new purpose. Opposite the synagogue is the Princess Park College. This school ranges from Grade R to Grade 12 and it has limited recreational and no sports facilities. The Masada Building and the Panagos Building are located on either side of the Princess Park College. The Masada building is currently rented by the Government Printers and the Department of Correctional Services. The Old Synagogue site is owned by the Department of Public Works, located on the proposed project site, erven 1/3489 and 2/3489, currently used as parking.
Figure 1.10: Western Streetscape and Analysis of Existing Context (Author, 2013)
1.6. Socio-economic Conditions

Government employees and school children populate the area on a daily basis with predominant pedestrian activity occurring between 12pm and 3pm. This could be attributed to government employees out to lunch and school children being on their way home during this period. Some informal traders position their stalls here, due to amount of commuters moving through this area towards transportation nodes. This current movement pattern necessitates a need for public spaces.

This area has a limited housing component, possibly adding to security issues experienced later in the day, as Jacobs (1961) argued, “eyes on the street” are necessary at all times of the day to initiate passive surveillance by a community. Unfortunately there is little evidence of a community at present.

Figure 1.11: Socio-Economic conditions of Site (Author, 2013)
1.7. Climate and Geography

The site is east-west orientated, which has a distinct influence on the micro-climate. The area south of the Old Synagogue is overshadowed by neighbouring high-rise buildings in the afternoons, for the largest part of the year (see figure 1.13). The prevailing northeast wind in Summer and southeast wind in Winter is largely screened off from the site by surrounding buildings. The perimeter of the site is populated with deciduous Jackaranda trees, which further aids in blocking the wind.
Figure 1.13: Sunstudy of site (Author, 2013)
Figure 1.14: Paul Kruger street Proposed Urban Framework (Author, 2013)
1.8. Urban Proposal

The urban proposal focusses on converting Paul Kruger Street into a pedestrian street. It includes re-instating the historical tram line, to link Pretoria Station to the south, with a proposed new taxi rank, mall and public parking facilities to the north of the street. This proposal intends to activate this seemingly dangerous part of the street.

It is proposed that public green areas replace spaces along the street that are currently fenced-off. Large pedestrian crossings intersecting with vehicular roads is envisioned. Urban landmark features are positioned at certain identified intersections, thus increasing urban legibility and public interaction.
Figure 1.15: Paul Kruger street
Proposed Urban Framework
(Author, 2013)
1.9. Historical Significance of Old Synagogue

In 1890, the newly formed Jewish congregation of Pretoria held their services in hotels and private houses. The congregation grew and on 11th December 1895, Erf 103 at 74 Market Street (known as Paul Kruger Street today) was purchased from Thomas Patterson by Simon Feinberg and Herman Mannesewitz for £1500. They intended on providing the congregation with an appropriate place of worship. On the 8th of August 1897 it was unanimously resolved that the synagogue should have a seating capacity for just over 500 individuals, with the total cost of the building (excluding the site) not to exceed £6500 (Vos, 1995:1). The design of the synagogue is the first example of Byzantine architecture in Pretoria, and Ibler and Beardwood were commissioned as the architects for its design (Vos, 1995:2). The elaborate Byzantine style was only applied to the street facade with the remainder of the synagogue being more economically designed (Vos, 1995:3). The millionaire and

Figure 1.16: Current Facade of Old Synagogue (Author, 2013)
philanthropist, Sammy Marks, contributed more than £1500 to bricks and other building materials. Later, when the congregation had run into financial difficulties, Marks lent a helping hand once again by purchasing the property from them. In 1913 plans for a Rabbi’s house were approved by the city council (Wilson, 2007:42).

The growing congregation could no longer be comfortably accommodated, in the synagogue, and in 1952 the Great Synagogue in Pretorius Street was built (Naidoo, 2012:42). In the same year, the Department of Public Works expropriated the entire block for the purpose of erecting a Supreme Court, with Gordon McIntosh appointed architect. (Wilson, 2007:43)

The design of the Supreme Court was deemed unethical and the synagogue was immediately altered. Installing jury benches and removing the rose window making it useful as a ‘special Supreme Court’. White paint replaced the red and ochre stripes of the facade. Cells and administrative offices were also added. (Naidoo, 2012:42)

From 1956 onwards, the building catered specifically for cases related to the security
situation in South Africa and the movements opposing the then apartheid regime.

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

The inquest into the death of Steve Biko, founder of the Black Consciousness Movement, was also held at the Old Synagogue, on the 14th of November 1977. No one was charged after the court ruled that there was not enough evidence to support the accusation that Biko had been tortured (Vos, 1995:16). It is apparent that the Old Synagogue has significant historical value and forms an integral part of the narrative of the city, and country as a whole.
Figure 1.19: Lightstudy- depicting the internal qualities with the skylight positioned above the nave (Author, 2013)
“Culture means the total body of tradition borne by a society and transmitted from generation to generation. It thus refers to the norms, values, standards by which people act, and it includes the ways distinctive in each society of ordering the world and rendering it intelligible.

Culture is ... a set of mechanisms for survival, but it provides us also with a definition of reality. It is the matrix into which we are born, it is the anvil upon which our persons and destinies are forged.”

(Murphy, 1986:14)
CHAPTER 2
Design Rationale
2. Design Rationale

The Millennium Development Goals of the United Nations (UN) does not include the development of arts. According to Prof. W. Schneider (2013), this is counterproductive to the existence of the United Nations Educational, Scientific and Culture Organization (UNESCO) namely to develop, sustain and conserve cultural heritage. Possibly the most effective way to achieve this is through the arts.

2.1 Cultural heritage

Cultural Heritage originates from the infant's environment. Sources of influence includes family and community, with establishments like schools and churches playing an important role. Narrative, or stories, are arguably the most successful devices of relaying cultural identity. Today, the accessibility to various forms of media cause concern over the diminishing role of cultural heritage. An example is the dominating effect that American pop culture has on smaller culture groups across the world. Portrayed through music videos and movies as being a more acceptable culture to pursue, it weakens the regard young people have for their own cultures and language. In general, this promotes a specific from of westernisation.

2.2 Westernization

Westernisation is considered as the loss of authentic cultures through the the domination of worldwide cultures. A major predicament exists where no backtracking can occur once an authentic culture has been lost through yielding to global culture. Cultural heritage cannot be superficially taught to a group of people, and simultaneously succeed as a "heart culture".

Figure 2.1: Culture loss (Author, 2013)
Nearly 7,000,000,000 people in the world

7492 known languages, 377 extinct since 1950

60 languages every decade

Figure 2.2: Language Statistics (Author, 2013)
2.3 Language and Culture

377 of the 7492 known languages, has already become extinct since 1950 when the recording of languages was started by The Ethnologue organization. That is 6 languages every year. (Paul, Simons, Fenning, 2013). In South Africa three languages have become extinct, namely, |Xam, Seroa and |Xegwi. Three are also near extinction, namely, N|u, Xiri and Korana (Paul, et al., 2013).

The loss of indigenous languages, used by a small community, occur, mostly because a more dominant second language is used to ease communication for daily activities. According to researchers of The Ethnologue (Paul, et al., 2013), the smaller language is typically confined to the home and family interaction. Ultimately loss of the structural complexity results, leading to a perception of unsuitability of the language by its users. Eventually, this results in the abandonment of that particular language by subsequent generations.

Language and culture are interrelated to such an extent that language endangerment is usually accompanied by social and cultural disruptions. Eisenbruch (2007) insists that culture bereavement, suffered by a community, has a significant social and psychological impact.

On a broader scale, the concern lies in the loss of the cultural heritage of humankind. Academia devoted to the study of languages and culture recognise different implications after losing linguistic diversity (Paul, et al., 2013).

The majority of South African languages are being used widely, however the cultural heritage associated with these languages often compete with the global culture.

It is difficult to attempt halting westernisation. It is therefore important to document cultures, with the added benefit of extending its existence beyond the individual cultures. Should the death of a language or culture be suffered, a well documented archive could ensure the culture’s preservation. It is possible to preserve language (and by implication culture), as various art forms, performing art, audio recordings, written records, films and other media.

The essence of culture is then captured in the artistic complexity, communicating using a sensory approach to different realities when discussing the questions of life. Culture-specific narratives are considered one of the most effective ways of communicating the essence of a culture. At the same time it is important that the narratives are understood by the audience.
2.4 Translation
Translation is proposed as a vehicle of facilitating the preservation of cultural heritage. For the purpose of this study, the term ‘translation’ is not used in the classic sense of the word, but rather used for any written or oral message, changed into another method of communication. These methods include dance, sculpture, or another language, among others.

According to Raffel (1986), when translating, lexical (the exact words of a language) conformity is not the purpose. This approach might even be counterproductive.

It is suggested that translations that focus on lexical accuracy cannot be sung, heard, understood or appreciated properly. The purpose of translation is rather ensuring the delivery of an accurate message.

For instance, a missionary wants to convey a message to a tribe who has never heard of sheep, but are pig herders. The Lord being their Shepherd is the intended message. Even though it might be offensive to the original Hebrew writers, it will be fitting to substitute Pig Herder in that context to accurately convey the message.

The purpose of the proposed centre, is to facilitate the formulation of narratives that are culture-specific. The facility should assist in conveying messages more accurately, ensuring the continual retelling of the recorded narratives. This process includes retelling existing narratives, to another culture, or narratives that did not previously exist, but are required to convey an important lesson or ideal to a group in need. Various forms of recording exist, for instance, a song could from part of archiving a unique communication method, specific to a particular culture.

2.5 The Translation Process

1.5.1 Model for Translation
The envisioned translation model is adapted from the process implemented by Wycliffe Bible Translators. Founded in 1942, The Wycliffe translation model has been implemented on minority languages in over 90 countries. In Africa, 458 language projects are currently underway.

Figure 2.3: Wycliffe Translation Process (Author, 2013)
<table>
<thead>
<tr>
<th>Original Indonesian Pantun</th>
<th>Lexically Accurate Translation</th>
<th>Proper Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Dari mana hendak kemana?</em></td>
<td>From where wish to-where?</td>
<td>Where have you gone to, where were you from?</td>
</tr>
<tr>
<td><em>Tinggi rumput dari padi.</em></td>
<td>High[er] grass than [wet field] rice.</td>
<td>Weeds grow taller than grain.</td>
</tr>
<tr>
<td><em>Tahun mana bulan yang mana,</em></td>
<td>Year where month where,</td>
<td>What year, what month, will time have spun</td>
</tr>
<tr>
<td><em>Hendak kita berjumpa lagi?</em></td>
<td>Wish we meet again?</td>
<td>Around to when we meet again?</td>
</tr>
</tbody>
</table>

An example of lexical accurate translation versus proper translation. Raffel (1986)
2.5.2 Adapted Model for Translation

The need for a narrative is established by three possible methods. Firstly, a government department or a Non-government Organisation (NGO) can commission a narrative work. Secondly, archived stories can be translated into another language or an adapted method of relaying the story. Thirdly, the premises provides ample opportunity for narratives to be gathered from users of the city through the public interaction spaces.

Continual surveys of communities, done by social workers, can also highlight the need for a narrative to address specific social issues. An example is Eersterust, east of Pretoria. There is a problem of gangsterism and narcotics abuse among young people. Narratives can be used to address specific social issues, giving rise to the problem.

Another example is a traditional rite performed by a particular culture. Once this rite is explained to other cultures, using narratives, it should become more accessible. The next step is to refine and discuss the intended narrative to be created. Participants include the commissioners, social workers, anthropologists, linguists and artists.

Discussion is a continuing component of the process and will ensure a successful product.

Next, the anthropologists create a culture-specific narrative outline identifying possible forms of the end product. This step is crucial in ensuring that the product will have the intended influence on the audience.

The process is now split, with ‘human production’ and ‘object production’ following different routes. ‘Human production’ refers to oral narratives intended to be retold by specific community members. A linguist drafts the oral story telling performance using proper language and referring to voice effects, bodily gestures, etc. After this community members are identified and coached in telling the story.

The object production route produces a more tangible form of a story, for example audio recordings, artworks, songs, or dances. The translator first prepares a script that will be finalised at a later stage by the particular artists involved.

A choreographer now uses the script to create a dance, which can be performed in front of an audience or taught to specific community members to be shared among their peers.

Music and oral narratives, as previously mentioned, are composed and recorded, then editted for distribution on various media devices. The dance, music and oral products can also form part of the ‘human production’ route, taught directly to specific community members for retelling at a later stage.

It is also possible to create written texts such as storybooks. After the writing process is completed, typesetting is done and graphic artists collaborate where needed. Printing, binding, and packaging follows, and the books are then distributed.

Graphic projects can take the form of billboards or leaflets, for example. This type of product is usually commissioned by government departments to communicate specific messages to the public.

An artistic creation can also be created, taking on the form of any fine art.

A possible result of the narrative process could be the increased tolerance among cultures. Communication is an essential component to the various translation models.
Figure 2.4: Adapted Translation Process (Author, 2013)
Figure 3.0: The Cangrande as Drawn by Scarpa (Murphy, 1990)
CHAPTER 3

Precedent Studies
3.1. Lillies Leaf Liberation Centre
Rivonia, Jhb - Mashabane Rose Associates
Architects & Urban Designers

The purpose of analysing the liberation centre is to understand a phenomenological approach when designing alongside historical structures. Lilliesleaf farm, the birthplace of the ANC military wing and secret headquarters of the ANC’s armed wing Umkhonto We Sizwe (spear of the nation), was raided by the apartheid police on 11 July 1963. The raid uncovered details of operation Mayibuye (comeback) intended to overthrow the apartheid government.
The raid led to the arrest and incarceration of the eleven Rivonia trialists, one of them, Nelson Mandela.

Figure 3.1: Route and Framed Views at Lillies Leaf (Author, 2013)
Figure 3.2: Ascending Approach at Lillies Leaf (Author, 2013)
The 2007 design saw the original outbuildings sensitively uncovered from subsequent residential developments imposed, after the 1963 events. Much of the historic fabric could be exposed and rebuilt using the available building rubble. The remainder of the structures were completed with contrasting contemporary materials such as concrete and glass. According to Low (2008:42), the historical layer was acknowledged, seeking “a silent repose in the historic landscape”.

New fabric of structures are clearly distinguished by an exaggerated seam. The resource centre is respectfully sunken behind the old manor house and reflects the images of the historical buildings in its glass facade.

The visitor’s view is initially screened from the historical buildings by the resource centre with a pathway leading away from the focal points. Although this can be seen as somewhat disorienting, the route is easily followed by directional paving patterns. The ground plane ascends like the narrative progresses, reaching a climax at the outbuildings and the armed struggle memorial. The story further unfolds as the path descends to the end of the route.

Views are emphasised in key positions along the route by means of framing or underlining and by positioning the visitor to experience a particular view. Low rising walls and benches at key points, allow the visitor to pause and reflect.

It is the author’s opinion that the centre is a successful intervention that is juxtaposed sensitively with historical structures, linked by the narrative route.

Figure 3.3: Directional Paved Route (Author, 2013)

Figure 3.4: Interaction Between Historical and New (Author, 2013)

Figure 3.5: Levelled Planes (Author, 2013)
3.2. Castelvecchio: Restoration & Addition  
Verona, Italy - Carlo Scarpa

The Castelvecchio project is a post-war restoration commission, awarded to Carlo Scarpa in 1958. It had been severely damaged during World War II, after being restored in 1920, although this was generally considered a crude attempt.

As Scarpa started to uncover the layers of the previous restoration work, archaeological finds were unearthed. These were incorporated into the new intervention.

Where a material or element connect with another, it is typically acknowledged using expressed joints, a change in texture or direction, etc. According to Carlo Scarpa, the idea is not to impose, but to juxtapose (Ellis, 1996). This approach is sensitive and appropriate when interacting with historic fabric.

Scarpa was of the opinion that paving is key to defining the geometry of a space (Ellis, 1996). In the Castelvecchio project he used patterns extensively to design the route.

Figure 3.6 highlights where the 1920 addition to the building connecting it to the adjacent wall. This was replaced by this intervention. Scarpa’s honest material use is vital to the success of this project. The roof plane is not only placed below the original, but the contemporary material also further contrasts new and old. The details are simple and controlled, showcasing a mature design approach. In the video footage of him visiting the gallery space he explains how he designed each moment, and the experience of the visitor.

Constantly keeping the visitor in mind, the route moves in and around the building and spaces. When interacting with the damaged historical elements, Scarpa argues that “a crutch is better than a new leg” (Ellis, 1996). Scarpa explains that he would rather leave the element in place than replace it with a counterfeit replica or attempt its redesign.

Carlo Scarpa cautiously touches the historical fabric, but with confidence.
Figure 4.0: Labyrinth (Author, 2013)
CHAPTER 4

Theory
4. Theory

4.1 Narrative in Architecture

Architecture conveys a message through the arrangement of spaces, materials used, social relationships and cultural purposes (Psarra, 2009). Generally speaking, the author of a novel conveys its narrative by placing events in a particular sequence, depending on the desired effect. Similarly an architect becomes the author of the visitor’s experience of a space or building. According to Psarra (2009) the sequence that the author or architect chooses can be arranged to achieve a specific time bound effect on a reader or viewer.

The architect, responsible for the design of a particular building, usually has the ability to reflect on the entire designed pattern at once when evaluating the design as a whole. A viewer, on the other hand, is given a perceptual view of the building according to the script prepared for him/her by the architect. The pattern gradually unfolds. This experience is enriched by the layering of the social and physical context, often using route to direct the observer.

A building’s narrative could be approached in various ways. For example, eliminating interpretive ambiguity, a cultural pattern could be reproduced. The narrative, alternatively, could function as a backdrop or canvass.

The acquisition, creation and retelling of the narratives of society requires a systemic approach. This is a system where interpretation becomes a process rather than a message, stimulating spatial exploration and engagement, intending to capture potential in meaning, changing with society with its spatial arrangement. Instead of reproducing knowledge and conventional meaning, it should contribute by generating new knowledge of spatial and cultural relations.

Figure 4.2: A Narrative Exchange (Author, 2013)
4.2 Space Syntax Method

This academic method attempts the amalgamation of intuitive design and theoretical or rational design. It uses diagrams when explaining spaces so that the analytical mind and the intuitive eye can work together in detecting hidden patterns. Hillier and Hanson (1997:2), explains that “intuition in design is a creative deployment of the non-discursive understanding of configuration.” They deduce that designers do not always have the words to explain spaces, but should rather understand it in a cognitive manner. A theory could inform the design by providing guidance, but the specific theory often struggles to explain or analyze a particular design informed by another theory.

‘Configurationality’ refers to the complex interdependent relation of two independent properties, however, this configuration changes when observed from different points of view. Additionally, when a part changes (whether element or relation), this can often influence the perception of the whole.

Space-syntax is abbreviated or formulaic where necessary, but it could become fluent and expansive, resulting in the reasoned deployment of intuition. This approach is called the reasoning art.

Space-syntax explains space as it relates to social meaning. These methods are rooted in embodied experience; including visual axis, visibility fields, sequence of visual information and diagrams of spatial connections, among others. This method isolates one of the factors affecting experience, visually, in a conception-perception comparison.

The proposed project explores the architectural promenade, investigating routes, approach and the visual axis. The view of the synagogue changes according to a visitor’s position on the site. The reflection pond should be filled with water at significant dates within the context. Water is used specifically to further emphasise the Byzantine facade of the synagogue.

CHAPTER 5
Design Development & Resolution
5. Design Development & Resolution

5.1 Initial Site Investigation

It is evident from the initial site analysis that there is a need for a public square or park, that the street edge of Johannes Ramokhoase Street needs a form of activation. The investigations led to a realization that the synagogue had to be acknowledged by setting back the new design intervention.

The difficult site orientation initially induces the thought of incorporating an unused part of the neighbouring site, on which SITA is located. This would have eased problems surrounding the proper orientation of the building. Inadvertently this proposal resulted in a certain degree of detachment from the synagogue. Consequently a visual axis link and narrative route is also investigated as possible design tools.

Figure 5.1: Massing exploration (Author, 2013)
5.2 Proposal 1

This proposal demonstrates the importance of the route, and visual axis, which links the synagogue with the design proposal. The public square, the street interaction becomes important design considerations.

02/4/2013 - 05/05/2013
5.3 Proposal 2

 Provision of northern sunlight to all habitable spaces is the main concern of this proposal. The design of public spaces, or sitting rooms also received attention. This part of the proposal remains similar for the final design resolution. The narrative route is established as well as a promenade on the visual axis with the defendant’s benches in the synagogue.

Figure 5.4: Approach exploration (Author, 2013)

Figure 5.5: Lightstudy (Author, 2013)

Figure 5.5: Elevation exploration (Author, 2013)
Figure 5.9: Proposal 2 - Alternative planning configurations (Author, 2013)
Figure 5.10: Precinct Framework (Author, 2013)
5.4 Precinct Planning Principles

The precinct framework focuses on creating a better quality urban environment for all users of the area. The SITA building currently has an uninviting hard facade which creates a corridor-like edge for passers-by. A high rise mixed-use building is proposed for the unused part of the SITA site to activate the precinct at all hours of the day. Permeability should be improved by introducing arcades and an avenue of trees, which acknowledges the Old Victorian Boarding House as heritage building.

Princess College across from the Old Synagogue on Paul Kruger street has a shortage of space. Like most city-based schools, the college does not have any sports facilities. The college accommodates 500 pupils ranging from Grade 0 to 12. As part of the urban framework it is proposed that the roof of the SITA building is converted into green roof sports grounds, complete with pavilions and changing rooms. A tuck shop could be incorporated as part of vertical circulation in an attempt to activate the arcade.

Activation of the street edges is proposed by providing from informal traders in conjunction with public sitting rooms.
5.3 Anchors
An appropriate design resolution, for a historically significant area, is possible when the designer follows set parameters. Anchors (the order of importance of objects) are established to serve as design signposts.

The Old Jewish Synagogue should be shown as the most prominent object on the site.

The public sitting room follows in order of importance. This is an informal setting where stories are attained, subjects for narratives are met, discussions could take place, and stories be retold. On a micro scale, this could be described as a stage for life.

A more formalised version of the public sitting room is the stage (the auditorium and the roof of the auditorium). The message communicated here is more structured and planned and the audience is larger.

The proposed facility should remain as backdrop to the narrative of life on the site. Therefore it is considered least significant, although it serves as binding element of the aforementioned functions. Here narratives are mapped, translated and formalised.

5.4 Parti Diagram

The main focus of the Parti Diagram is on the identified anchors, however the relationship between the new translation centre and the existing anchors were constantly explored. This resulted in a wing of the proposed building to be east-west oriented. This decision resulted in servant-served relationship of spaces being paired with a climate control strategy. Stated differently, the conscious allocation of spaces and functions, such as store rooms, that are not sensitive to orientation, received attention.

Two main access points to the site are established after completing the site analysis. This resulted in one access point from the envisioned tram stop, on Paul Kruger Street. The second access point is placed on the visual axis, running through part of the synagogue where Nelson Mandela was seated during his trial in 1952.

Permeability through the site, for pedestrians, resulted in open corridors, an arcade link and the option to “cut” the corner of the site.

Figure 5.11: Precinct Framework (Author, 2013)
Figure 5.12: Parti Diagram (Author, 2013)
Figure 5.13: Final design massing process - step 1 (Author, 2013)
5.5 Massing

The accommodation list is diagrammatically set out, according to required sizes, and relationships. The respective grouping of served and servant spaces is apparent. This is rationalised, divided into floors and illustrated as a massing model, indicating the route that the translation process will follow.

This massing of the building follows the framework of the public space, due to the principle of the “anchors” as explained earlier.
5.6 Final Proposal Development

In this project, the narrative unfolds alongside the Old Jewish Synagogue as main focus. The library becomes the main location of vertical circulation of the building due to the part it plays in the translation process. Each phase needs to refer back to the knowledge contained within the library to correlate with its preceding phases. The atrium at the workshops also signifies and facilitates the communication, collaboration, and transparency required between these phases. The synagogue can be more sensitively acknowledged than this configuration, especially by the auditorium. This is resolved in latter configurations.
Figure 5.19: Final Design Plan - Configuration 1 (Author, 2013)
The auditorium now becomes part of the public sitting room. The roof of the auditorium serves as a pavilion looking toward the synagogue, creating an informal outdoor theatre. Permeability through the building is enhanced and acknowledges access routes and entrances of buildings across the street. The western facade attempts to be very sensitive toward that of the synagogue. Landscaping patterns are informed by the adjacent facade of the synagogue. The discussion room is presented as a glass box connecting the public subjects and their stories with the facility, symbolising transparency. The massing is scaled to acknowledge the synagogue north, and the rest of the city south. Development of these principles are shown in the images that follow.
Figure 5.23: Final Design Plan & West Elevation- Final Configuration (Author, 2013)
Figure 5.26: Final Design Ground Floor Plan (Author, 2013)
FIRST FLOOR PLAN LEGEND

Figure 5.28: Final Design First Floor Plan (Author, 2013)
SECOND FLOOR PLAN

1  Library
2  Lift Lobby
3  Reception & Administration
4  Workshop Area
5  Atrium
6  Discussion Area
7  Translation Open Office

SECOND FLOOR PLAN LEGEND

Figure 5.29: Final Design Second Floor Plan (Author, 2013)
THIRD FLOOR PLAN LEGEND

1 Library
2 Lift Lobby
3 Reception & Administration
4 Workshop Area
5 Atrium
6 Discussion Area
7 Specialist Private Offices

Figure 5.30: Final Design Third Floor Plan (Author, 2013)
Figure 5.31: Final Design Line 3D - View from S-W Corner (Author, 2013)
Figure 5.32: Final Design West Elevation (Author, 2013)
1 Public Sitting Room
2 Discussion Area
3 Main Discussion Area
4 Auditorium
5 Green Roof / Seating
6 Stage
7 Monument
8 Soft Surface Square
9 Gateway
10 Old Synagogue

SECTION B-B LEGEND

Figure 5.33: Final Design Section (Author, 2013)
Figure 5.34: Celebration of Synagogue (Author, 2013)
Figure 5.35: Covered Milling Area (Author, 2013)
CHAPTER 6

Technical Resolution

Figure 6.a: West Elevation of Synagogue (Author, 2013)
Details 1, 1.1 and 2

The concrete audio 'box' at the library is depicted in detail 1 and the fixing detail of the counter in detail 1.1. Water will be disposed of using the down pipes cast into the concrete columns supporting these boxes.

Detail 2 shows the tanking detail at the basement. The existing water table height of the Pretoria CBD requires tanking as opposed to waterproofing. The screed is purposefully 85mm, thus affording the brick gauge to coincide with the masonry walls built on top. Additionally, the screed serves as protection of the torch-on waterproofing on top of the concrete slab. The thickness assists in accommodating active loads typically located in basements.
Detail 3 & 4

Detail 3 depicts the mild steel stair treads of the library. Detail 4 shows how waterproofing of tiled roofs are constructed. Two screed layers are required, one to create a slope toward the full bores for the torch-on waterproofing, the other to level the surface out for tiling again. The skylight detail works on the principle of protecting the glass by allowing for movement by using mastic silicone fixings. The detail also allows for replacement of panes in event of damage.
Detail 6 - Point Fixed Glass Facade System

This facade system was selected to create a sense of fragility and transparency. Steel members in tension create a slender structural system. Large toughened laminated glass panes (Armourlam) suspended from the structure using pre-drilled holes.

Two mild steel I-beam girders serve as support at the top and intermediate connecting the tension members. Baseplates with starter bars are cast into the reinforced concrete floor slab serving as the bottom connection. The I-beams and building are connected using connection plates with started bars cast into the reinforced concrete walls.

The tension members make use of the patented Durowin Rodan system, including spider clamps, compressive members, tie rods and fork-end pieces. The baseplate and the connector plates will be custom-made because the angles of each application may differ.

It is important to allow for the movement of the glass panes to prevent shattering. This could be caused by wind forces and heat expansion. Neoprene gaskets with mastic silicone filling are used between panes, at junctions and connections as well as at pre-drilled holes.
2720x900mm FIXED DOUBLE GLAZED (IG) UNIT WITH LOW-E COATING AS PER NATIONAL GLASS

MODCON PRECAST
CONCRETE COPING "014"

M10x110 EXPANSION BOLT
COUNTERSUNK INTO
SALIGNA BRANDING

160x6.3mm Ø MILD STEEL
COUNTERSUNK WOODSCREW

75x50 LAMINATED SALIGNA
BRANDING

75x38mm LAMINATED
SALIGNA SECTIONS
Ø 75mm c/c SPACING
FIXED TO BRANDING

REINFORCED CONCRETE
RETAINING WALL AS PER
ENGINEER DESIGN

CONSTRUCTION JOINT

REINFORCED CONCRETE SURFACE BED
AS PER ENGINEER DESIGN

30mm SAND BLINDING LAYER OR
OTHER PROTECTION

250 MIRROR THICK "GUNPLAST
GREEN" DAMP PROOF MEMBRANE

UNDISTURBED SOIL

110mm 'FBS' CLAY BRICK
PROTECTIVE WALL

18mm SOFTBOARD

ONE LAYER DERBIGIN C03
WATERPROOFING MEMBRANE
WITH 100mm SIDE LAPS AND
150mm END LAPS SEALED TO
PRIMED SURFACE BY TORCH-
ON FUSION

150mm LAYERS COMPACTED
STONE/GRAVEL COVER FILL

DELTA MS8 DRAINAGE SHEET

50x50mm ANGLE FILLET

150mm Ø AGRICULTURAL DRAIN
PIPE WRAPPED IN GEOTEXTILE
CLOTH TO CONNECT TO MUNICIPAL
STORM WATER SYSTEM

RODUN HUSSEY MEDIUM BACK
AUTOMATIC TIP UP SEAT FLOOR
MOUNTED ON STEEL SUPPORT
WITH GRAVITY TIP MECHANISM

10mm THICK BASEPLATE AS
PER SEATING SYSTEM
WITH COVER

HILTI HIT-V M10x95 CHEMICAL
ANCHOR ROD INSTALLED AS PER
HILTI SPECIFICATIONS

DETAIL 7
Detail 7

In this detail the below-grade waterproofing differs from the tanking approach of the previous detail. Here an agricultural drain and backfill is used. This is due to the shallowness of the elements which, by implication, results in water pressure being less of a concern. The waterproofing will not be torch-on, but is rather placed under the concrete slab with a protective blinding layer between the slab and waterproofing.
Two requirements for successful green roofs are that the waterproofing needs to be protected from being penetrated by the roots of the plants and the plants need proper drainage of the soil. This detail explains the green roof system.

A sloping screed on the concrete slab allows for the torch-on waterproofing to fall toward the full-bore outlet. Bitchumen impregnated Masonite softboard protects the waterproofing from a gravel layer assisting in soil drainage. The gravel is topped with a root-blocking sheet and a fleece fabric stopping fine soil particles from contaminating the gravel layer. The soil composition or growing medium will be specified by a landscape architect to suit the selected plants. The depth of the growth medium is important for the specific plants. The super-imposed dead load implication on the structural design and sizing of the building. The full-bores will be encased in an inspection chamber to allow for maintenance. A brick surround is filled with gravel and serves to separate the inspection chamber from the growing plants.
CHAPTER 7

Conclusion

Figure 7.1: View of Library (Author, 2013)
7. Conclusion

I saw the Old Synagogue for the first time last year when I took a wrong turn in the city. This beautiful object, wrapped in barbed wire initiated a fascination. The building chose me. For the past two years it became increasingly important to understand all aspects of this historical building. From the architecturally significant Byzantine facade, its historical role in our country’s history, to the significance it had (and still has) for the Jewish community. An intensive study of the synagogue ensued, which included among others, repeated visits to the premises, obtaining access via the current owner, the DPW and studying the archived files at the DPW and an interview with a Rabbi.

The result was the exploration was a variety of design generators, many of which I was not accustomed to using. In reviewing the design process, I now realize that, as an intuitive designer, it is possible to substantiate the initial idea of the design. The multitude of thoughts which assisted in formulating the initial idea and resulting image should be unraveled. This process provides substance and clarity - to designer as well as interpreter.

Sun and light studies, concept models, and massing models all led to establishing route and access for different users. Using primary and secondary “anchors” whilst exploring new design avenues characterised my design process. Supporting concepts like urban integration provided guidance in making design descisions.

Three distinct design proposals resulted in the final product. If any design question could have another possible solution, it was refined until it was the only fitting answer.

Upon contemplating the entire process I now realize that the final product is indeed similar to the initial intuitive sketches. However, the final design follows a logical reasoning pattern toward resolution, clearly illustrating Space-syntax.
CHAPTER 8

List of References


CHAPTER 9
Appendices