Creation of Understanding within Government Architecture through
Exploration of Public Private Thresholds in the Pretoria CBD

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RE • JOIN

verb [trans.]
join together again; reunite :

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Firstly, Thanks you to my creator, the God of the bible that has extended such undeserved grace to me throughout my life and more specifically throughout this year! Without Him I wouldn't have accomplished what I have, let alone even be here.

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"All architecture is shelter, all great architecture is the design of space that contains, cuddles, exalts, or stimulates the persons in that space."

-Phillip Johnson
(http://thinkexist.com)

Fig. 1.1 Urban Scene

BACKGROUND AND CONTEXT 01

Fig. 1.2 Refuse caught on city fence

Normative Position

Government buildings currently act as strong commoditized components placed in the urban fabric that do not have much interaction with their context. They purely fulfill a mono-functional need that often results in an introspective architecture.

These buildings seem to rehash the same spatial failures and norms due to a seeming lack of focus on the connection between the building and its immediate environment, namely the street edge and block context. According to various interviews conducted by the author, employees from different government departments expressed their satisfaction with the internal functioning and general aesthetic appeal of the newer buildings; however, architecture should never be mono-functional, it should synthesize multiple requirements into a single built product that defines the in between spaces rather than standing as an abrupt entity within a dysfunctional locale (Frederick. 2007, 7).

Given that each government department fulfills a very specific function, this does not rule out the opportunity to engage with the urban context and allow for other uses to compliment the primary use and fulfill auxiliary needs in a symbiotic relationship as mixed-use buildings.

Government buildings therefore fail to provide the cohesion synonymous with Government vision of solidarity, in that the existing building stock fails to contribute to the unification of individual departments with the urban fabric within which they are located. This leaves users of the urban environment in a disconnected state of being caught in between the street and the building experience.

Current Condition

A cursory analysis of five recent buildings within the CBD, namely the Department of Minerals and Energy, the Department of Health, the department of Public Service and Administration, the Department of Basic Education as well as the New National Library, all highlight common flaws, namely that the street edge is either dead or poorly engaged. Given that the safety of the interiors of departments needs to be addressed, a complete exclusion of the street connection where a strong exclusionary message is sent with either stark strong walls or fences. Where entrances are off the street they pose an uninviting front for example, the Batho Pele House (Fig. 1.6) or a tedious ascent to an elevated entrance space that disconnects the user at eye level in the case of the National Library (Fig. 1.4) With this lack of street connection the user is predisposed to reading a strong, albeit unintended message of exclusion (Bonta, JP.28). Buildings therefore read as non-negotiable objects within the landscape and create a general feeling of disorientation.

Fig. 1.3 Department of Minerals and Energy
An Invaluable opportunity has been missed to engage with the pedestrianised street edge. The building is impenetrable on street level, which makes it a non-negotiable to the passer by. In invaluable opportunity to engage with the quieter street and adjacent open corner in the foreground has been missed.

Fig. 1.4 New National Library
The street condition on either side of this corner is defined by dark walls, which creates a vacuum of experience for the user. The bold ramp on the corner invites the pedestrian a semi-public platform, which is disconnected from the street due to its set back and height. As a result the semi-public intermediate space becomes quiet due its initial interface.

Design Problem

Government buildings should be the flagships of urban regeneration. Their response to the urban condition should provide accessibility, legibility and security to internal users as well as users on street level. The emphasis should be removed from the building as an object and rather placed on the creation of the architectural experiential milieu that has a strong relationship with its urban environment. The needs generated within these environments should catalyze economic growth and urban development rather than impede it. Although the architectural typology of the government building remains mono-functional at its core, ancillary functions should be accommodated for in mixed-use precincts where specific Government departments act as the nuclei for urban environments.

The current condition of abrupt thresholds between the public and private realms should be mediated with an introduction of an "in between" urbanity between these two extremes. This can be done through visual connections, level differences and intermediate spaces that encourage communal interaction and activate the landmark character of the public architecture, thus reinforcing their sense of place and prominence within the urban fabric.

Fig. 1.5 Department of Health
This corner is confronted by a very bold fence which leaves the user to feel isolated on the street and quite unsafe. The glazed building that is out of proportion with its immediate context adds to this negative feeling.

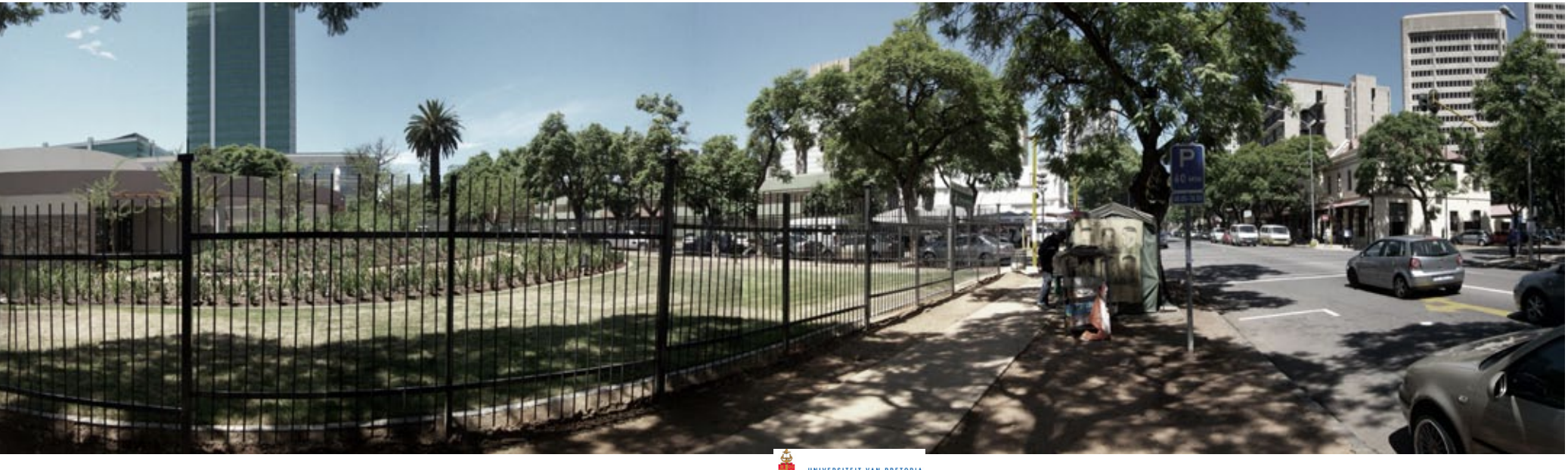
Fig. 1.6 Department of Public Service and Administration
The building presents a monotonous façade with a white painted steel fence to a blank street. The passer by has no reason to stop, even just to admire the experience. The entrance to the building is reminiscent of a back ally club and makes the user feel excluded, even from the public realm outside the building. Beyond the doors, is a cavernous and uninviting entrance lobby.

Aims of Study

The public face of government departments need to be reconsidered to aid urban renewal and revitalization. New buildings should be treated in such a way as to revitalize the Pretoria inner city. The sense of place of the existing government precincts should be reinforced with a number of auxiliary functions acting as infill blocks within the various functional and departmental sectors.

Government departments and their architecure need to be re-evaluated in terms of their contribution toward the favorable urban condition.

Fig. 1.7 Department of Basic Education
An opportunity to define the corner architecturally has been deferred in flavour of an inaccessible open space. This is a useless space as the fence causes the sidewalk to become just another dusty corridor between removed activities



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Research Methodology

The following are the various research methodologies that were employed to inform the design process:

Study of precedents

Through the study of precedents relating to various aspects of the design the flaws and strengths of various architectural and urban design schemes are highlighted, thereby giving guidance as to what interventions are necessary to solve the current problem of mono-functional government architecture

Interviews and Demographic Analysis

The needs of various government departments within the study area were determined through individual interviews with civil servants working for the various departments in close proximity to the identified site. Also, the needs of the various demographic groups that use the city were accounted for, as this informs the interaction on street level. This was done through prescriptive questioning as well as observation of various peoples.

Historical Method

As this project sits in a historically rich precinct, the layers of history act as design informants, and in large part, inform much of the significance of the urban space, the significance and integration of existing as well as the design of the thesis project itself.

Theoretical Research Method.

In order to deal with the perceived failures of the "pseudo-modern" blocks, appropriate counter arguments are formulated to avert the failures of modernist urbanism.

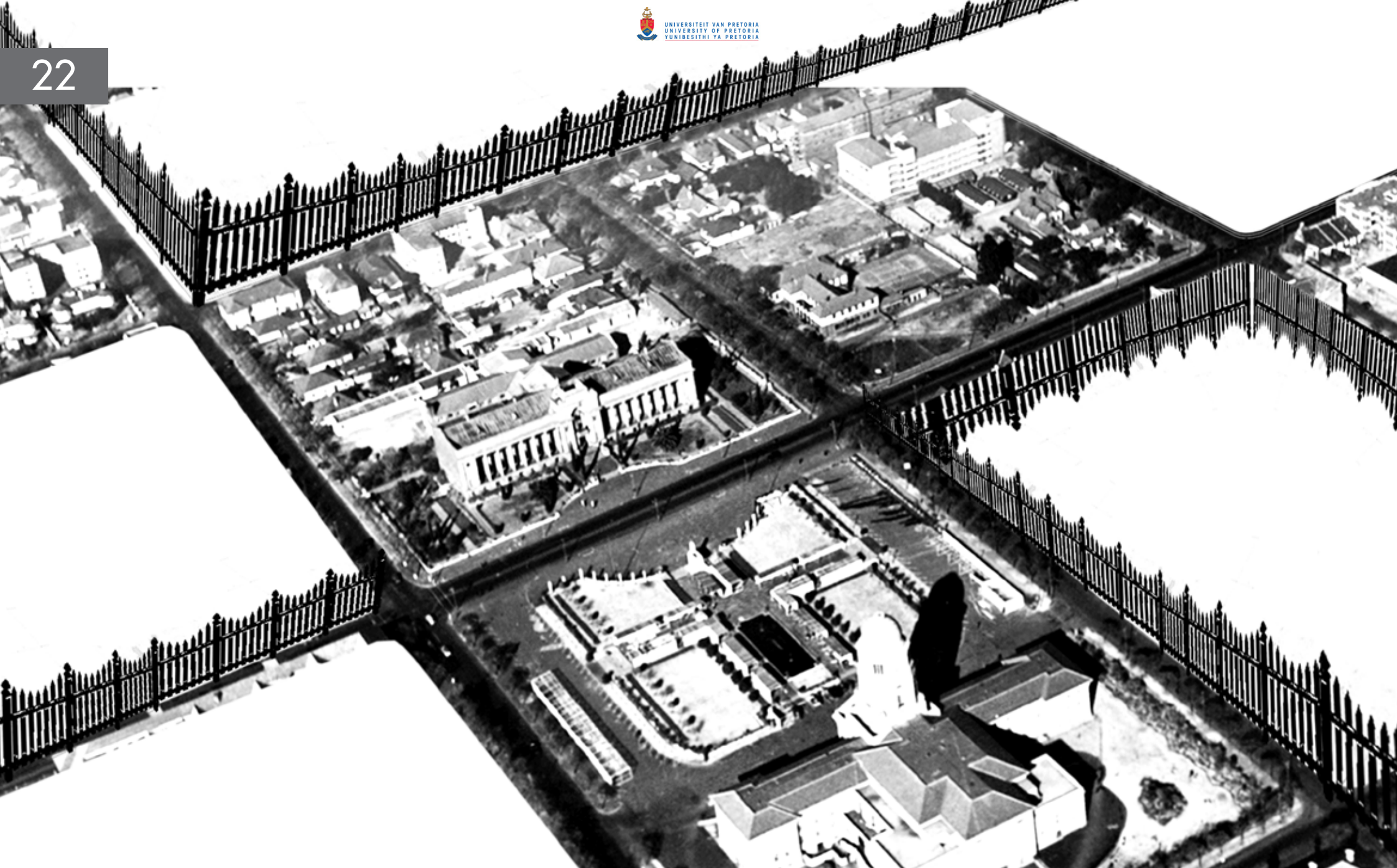


Fig. 2.1 Experiencity Framework Image showing an emotional image of the city

URBAN FRAMEWORK, THEORY AND HISTORY 02

Fig. 2.2 Experiencity Framework Image showing graphically the theoretical holes left in the Urban Fabric on the left, with the individual in-fill projects in contrast on the right

EXPERIENCITY FRAMEWORK

Introduction

The author together with Louise De Villiers, Henry Boardman,Ilse Behren's, Sherhsen Naido developed the "Experiencity" Framework. The goal was the exploration of experience in the Pretoria CBD. This is not a prescriptive framework in terms of building heights and specific site uses etc. but rather an approach to the creation of a milieu that encourages positive urban development.

A Brief Tale of Urban Awakening

The term 'urban design' was coined in the 1950s. The field emerged as a response to the inadequacies and limitations of the 'philosophies and design paradigms' of architecture and city planning during the Modern era. At this stage in history a strong 'division' had developed between the theories of architecture and planning. Elements that are now ascribed to the field of urban design had previously been an overlap between these professions (Cooper, et al., 2009).

In response to the failure of the Modern Movement to affect social change and the 'inhuman' urban environments it created, a new paradigm of diversity became the focus of urban design. Jane Jacobs was one of the first writers to celebrate the 'real' city. A wave of theory concerning the expression of complexity in the urban environment followed, e.g. 'Collage city' by C Rowe and 'Complexity and contradiction' by Denise Scott Brown and Robert Venturi. Works such as 'The image of the city' by Kevin Lynch provided a new way of working with the city, and was the first step towards the attempted recreation of diversity in urban environments (Powell, 2000).

As a progression to this way of thinking, Leon Krier started a move towards the recreation of the 'European city'. What attracted designers to the idea of the 'European city' were the symbolic richness, true variety and meaningful articulation of the urban environment (Powell, 2000). The intrinsic use of classical architecture and traditional urban forms was conservative and inevitably led to the failure of this approach to create new / contemporary urban spaces.

More recently there has been a tendency to recall the role of architecture, both as generator and defining element, within the urban environment. The contemporary approaches to urban issues critically consider the three-dimensional space of the city, and accept the need for picturesque composition as one element of the overall composition of the city, a 'holistic interaction of aesthetics, politics and finance' (Powell, 2000). At the same time there is an increasing despair concerning the lack of ability of urban theory to date to construct or contribute to the true complexity of the city. Urban design often seems unable to create the richness, variety and diversity of that which is now considered to be the ideal urban environment.

Fig. 2.3 Image Showing Urban Analysis of Pretoria CBD as Precursor to theoretical argument

Fig. 2.4 Image Showing Urban Analysis of Pretoria CBD as Precursor to theoretical argument

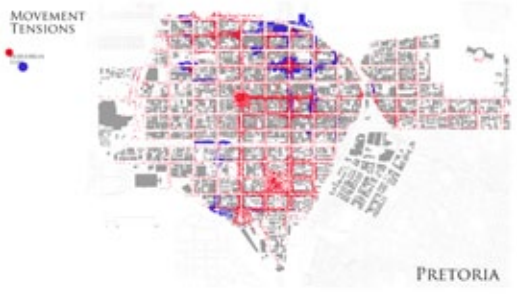


Fig. 2.5 Image Showing Urban Analysis of Pretoria CBD as Precursor to theoretical argument

Problem in Three parts

When attempting to identify a problem statement in the context of urban complexity, it is crucial to understand that no urban issue stands in isolation. It would, however, be impossible to consider and unravel, in one attempt, the complete complexity of all things urban. The identification of a problem statement therefore becomes a matter of prioritising that which one can change or at the very least attempt to affect in one attempt.

For the purpose of "The Capital Approach" the following issues have been identified:

- Lack of capital city identity
- Ill-defined space, overwhelming mix of meaningless information, non informative, unstructured
- Mostly privatised built fabric with abrupt thresholds, little / no active interaction with space

Fig. 2.6 Image Showing Urban Analysis of Pretoria CBD as Precursor to theoretical argument

A Capital Approach

Within the current approach to the creation of frameworks, there is a lack of understanding and a disregard for the functioning of space on a human scale. Local complexity and experience of space is not interrogated. The proposed interventions therefore do not address these issues and are unable to contribute towards a constructive urban vision.

We acknowledge that it is not possible to build urban complexity with one spatial intervention. Therefore we rather want to invert our approach in order to determine those fixed elements that will essentially contribute to form the base upon which urban diversity can grow. These elements may include spaces of social, cultural, political or economic importance.

Diversity cannot be created in undefined space, nor can it be created by a piece of architecture in isolation. It is the relationship between the space and the architecture as well as the relationship between various elements of architecture or places with social, cultural, economic, or political significance that creates tension and fields of possibility within which experiential space can develop. Our framework is about the relationship, the co-existence, and the threshold. It is not about generating a prescriptive guideline for intervention at city or block level. The approach is that various architectures and physical interventions can still contribute to the creation of the experiential field.

The system is created around points of importance or significance (social, cultural, economic, political) between which movement tensions develop. This tension creates the basis for the potential development of an experiential field.

Experiential space is multi-faceted; it includes elements such as enclosure, hierarchy, threshold, definition, meaning and symbol. Experiential space is sensory (perceptual) and may involve elements such as sound, colour, and texture. It is rich with social, cultural and economic meaning and evokes emotional involvement and response.

Different combinations of perceptual / sensory elements, program and definitions of space will read as different space experiences and will lead to different uses of space. All of these elements will contribute to the legibility of spaces and ultimately to the intelligibility of the city.

A Capital Approach continued

The experiential field is directly influenced by the urban fabric within which it is contained. Although a number of elements have an influence on the perception of the experiential field, the most important element is the threshold. The threshold stands in contrast with the boundary. The boundary merely defines and separates the private and public realms. The threshold defines public space, contributes to the formation, richness and understanding of the experiential field and forms a transition space linking the private and public realms. The threshold acts as a join or stitch, underlining the importance of communication and interaction between the private and public realms. The term 'join' denotes a physical space connecting two parts of a system but also indicates an action. The threshold is a meeting space providing the potential for social interaction activity and movement.

The threshold is not a fixed space with a fixed character. It consists of a number of combinations of a number of elements, all contributing to the sensory richness of the experiential field. If two or three elements change in a certain combination, it becomes an indication of a certain type of spatial experience. For example: the reading of a red light district would manifest through elements such as neon signs, closed doors and little overt social interaction whereas an entertainment area would become legible through a combination of open doors, more muted signage, tables on street with obvious interaction, certain smells and conversational sound.

The aim of the framework is to exploit the city as a field of possibility within which tension and dialogue between points of significance can develop into an experiential field. The city currently contains

a number of well-used points of significance, but the experiential fields between these points are often inadequately developed. Through the potential development of additional points of significance as well as treatment of threshold spaces within the tensions between these points, the experiential field will be further developed.

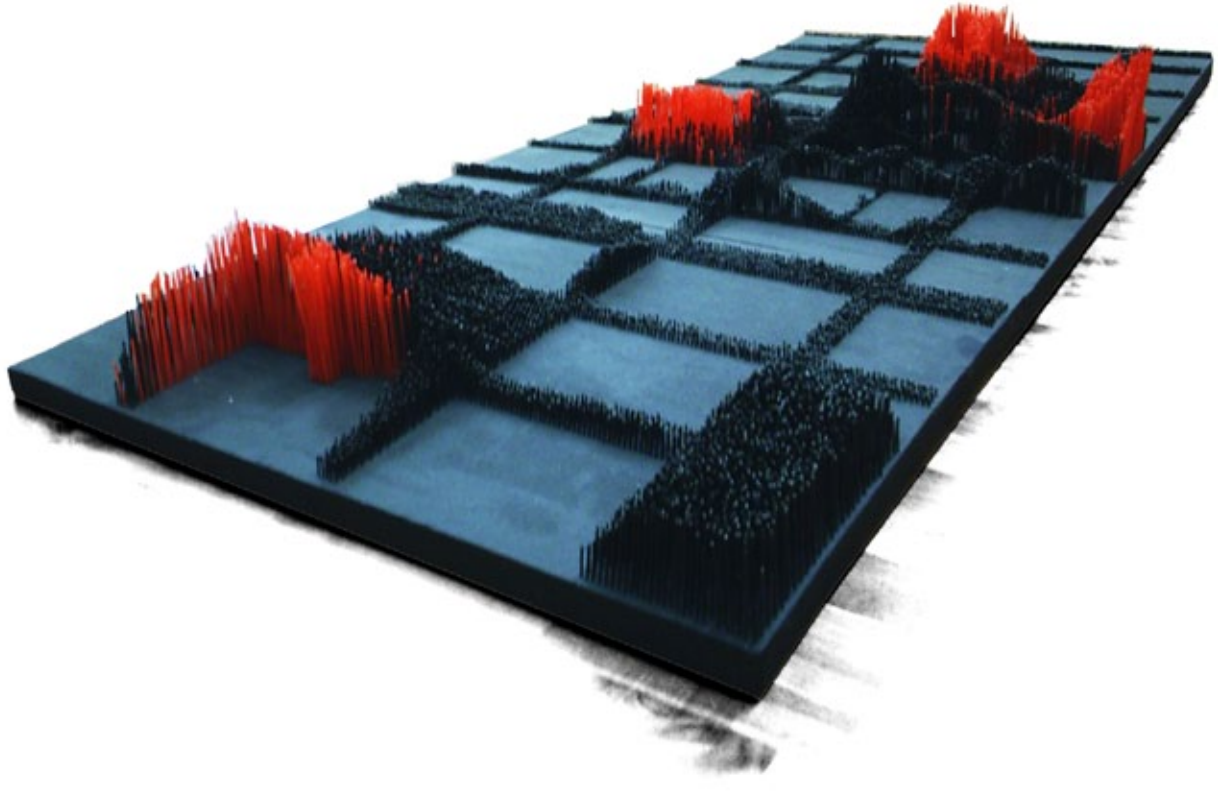


Fig. 2.7 Experiencity Framework model showing an emotional experience within the CBD along Paul Kruger street and the surrounding blocks indicating the existing experiential intensity in black with the newly proposed intensity, indicative of individual interventions, in red.

Fig. 2.8 Man on his way to work in Pretoria CBD

CONCLUSION

The "Experiencity" framework is less of an orthodox framework in that it does not propose a blanket prescription of restrictions and physical norms but rather a theoretical approach to space and the formation of a solid urban vision in terms of social and spatial cohesion. The onus therefore lies with individual interventions to translate the theory into built forms based on context specific design informants. The thesis project within will therefore make use of the tensions within the city, being that of various transport movements, informal activity, layers of heritage and government functions within the area to exploit the possibilities of the experiential field as explained within the framework through providing for the need of a social solidarity point by way of the provision of auxiliary spatial and functional needs. This will take into account the failures of past urban frameworks and public provisions and explore spatial possibilities rather than just objects in the landscape. This will be in an attempt to bring meaning to the anonymity of the anthropometric experience and bring about the unification of individuals collective belonging, thus strengthening government vision for social togetherness.

THEORETICAL APPROACH

The objective of architecture is to provide a framework within which people are to live of their lives. The relationship between spaces will be determined by how people move through them and the potential opportunities for interaction – both on an inter-personal level between users, and to facilitate the interaction between the public and government functions. The contextual perception of the user in the realm of inter-personal validity needs to be considered. The ideals of human interaction needs to be looked at in the context of the urban environment (Bonta, JP. 99)
Existing conditions comprise an often-uninviting modernist object placed within space, which excludes public participation both on a physical and psychological level. In order to provide opportunities for the experiential field to develop, the modernist block must be reconsidered to reverse its anonymity for the user, thus affording interaction at street level as well as orientation and integration in a meaningful context.

The approach to the urban design problem will be explored by considering the following questions. The responses will determine the resolution of an urban public space that redefines public perceptions of architectural norms. This should provide legibility in both the private and public realms and engage the users on street level as an invaluable contributor to the economic well being of the urban environment

Theoretical Questions

- How to adapt current thinking to ac commodate the notion of Defensible Space?
- How to create space that extends and an invitation to the passer by?
- How the relationship to the street context can be improved considering the lessons of existing failed streetscapes?
- Through which spatial mechanisms can government architecture serve the public better?
- How does the sense of place and civic presence remain intact in the face of the afore-mentioned public interventions and interfaces?
- Can a clear hierarchy of space still be maintained within such a richly programmed space?
- How are both Physical and Physiological boundaries blurred in order to clarify the users contextual perception and avoid unforeseen extrication?

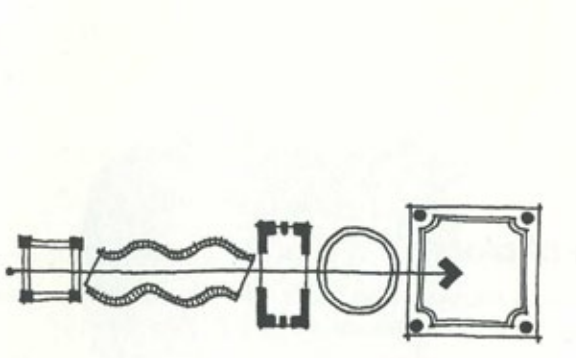


Fig. 2.9 Image showing Progression of Movement through Space (Frederick, 2007)

RELATING THE BUILDING TO THE URBAN CONDITION

Propinquity, the essence of the "Mixed use precinct", is responsive to:

- Nearness within precinct
- Nearness in relation to neighbouring functions
- Nearness in relation to time, i.e. traveling distances
- Similarity in nature due to urban response, where specific precincts begin to have a distinct nature due to the conglomerate functions within these zones

If the aim of architecture is to provide a framework in which people can successfully perform the function of their daily lives and aid crucial social cohesion then the relationship between spaces must be determined by how people move through them. Proportion is therefore a contextual experience that needs to be considered within the realm of anthropometric scale.

Human senses do not react to the absolute value of various stimuli but rather to their relative value within their perceptual context (Bonta, JP. 99.) For harmony to exist in human minds, according to Gestalt theory, the elemental parts must add up to a perceivable dominant whole whereby "Independence is subordinate to interdependence" (Smith, PF.27)
The Urban response therefore needs to take into consideration these four points of proximity so as to provide a suitable rhythm within the urban experience:

- The relationship between form, function and perception
- The creation of spatial experiences rather than objects.
- The tension between programmed and unprogrammed spaces
- Possible adaptable zones where mixed needs and future functions can be accommodated. This would happen through sub dividable spaces and larger open spaces where temporary programmes can determine the nature of the space

Theory drawn from Oscar Newman

Although Oscar Newman's critique is on American public housing, the principles can be translated to the South African context in that the current physical environment discourages collective action and as a result collective communal engagement is impeded. He also states that joint action is essential to the survival of urban life. An architectural solution is therefore proposed that it encourages cohesion and cultivates a micro-environment that urban dwellers can take ownership of. In order to foster this cohesion, architecture needs to act as the physical catalyst, through the addition of real and symbolic thresholds to provide the necessary spatial associations that start binding mental and emotional perceptions and initiate the revival of the collective milieu (Newman1972: 1-3). Architecture should create a clear understanding of space and who its users need to be, thus encouraging users to adopt certain territorial attitudes. The approach being that although the notion of Defensible Space was originally developed through analyses of residential models, the same principles could potentially be applicable to the larger realm of public space and may create the necessary physical frameworks for social actions and reactions that bring the community together as co-owners of a space that relates to them not just on a functional level but on a deeper emotional level. (Newman1972: 4-23).

Oscar Newman (1972: 4-23) provides four elements of physical design that aid secure environments and thus begin to facilitate cohesion.

- Territorial design reflecting specific areas of inhabitant influence
- Positioning of windows for natural surveillance
- Avoid perceived vulnerability through appropriate building forms
- Safely located Site, without continual threat.

Architecture is never just a matter of just style, comfort or image. No single element can be vied in isolation. Depending on the approach, architecture can either create or impede social cohesion. Civic architecture in particular creates a social narrative through which the perception of government is either positively or negatively enforced. With this responsibility, the approach needs to be taken from the outset to engage the user on street level and encourage the return of positive public participation.

Applicability to Problem

The anonymity of the urban fabric and the decay over the last fifteen years has resulted in a lack of collective experience and by extension the perceived rights of the community and shared value of the general public. The need for thought into the social implications of built forms is evident and if not addressed will continue to impede the unification and solidarity that local and national government are striving for. Through clarification of the architectural experience, each individual should be made to feel part of the collective whole thereby reversing negative perceptions and nurturing communal integration. Within the scope of the intervention, social and collective space will be provided for through dealing with the following:

- **Transparency and Operability** where there was previously strong division and exclusion.
- **Spatial Freedom,**where there was little room for expression and sense of belonging
- **Dynamic Urban Edges**, where blank Facades where the norm
- **Communication of Elements**, where buildings stood as objects in isolation
- **Intermediate thresholds**,where spaces where disconnected through abrupt severance.

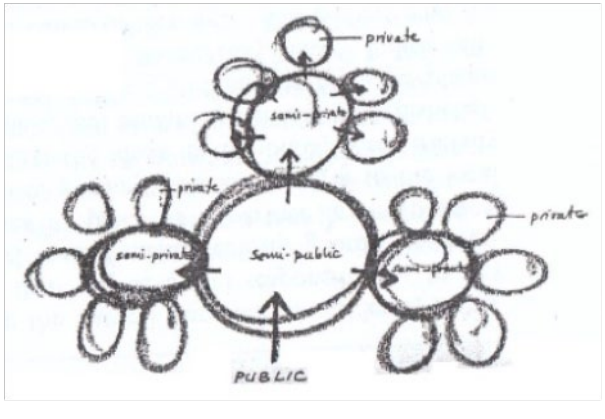
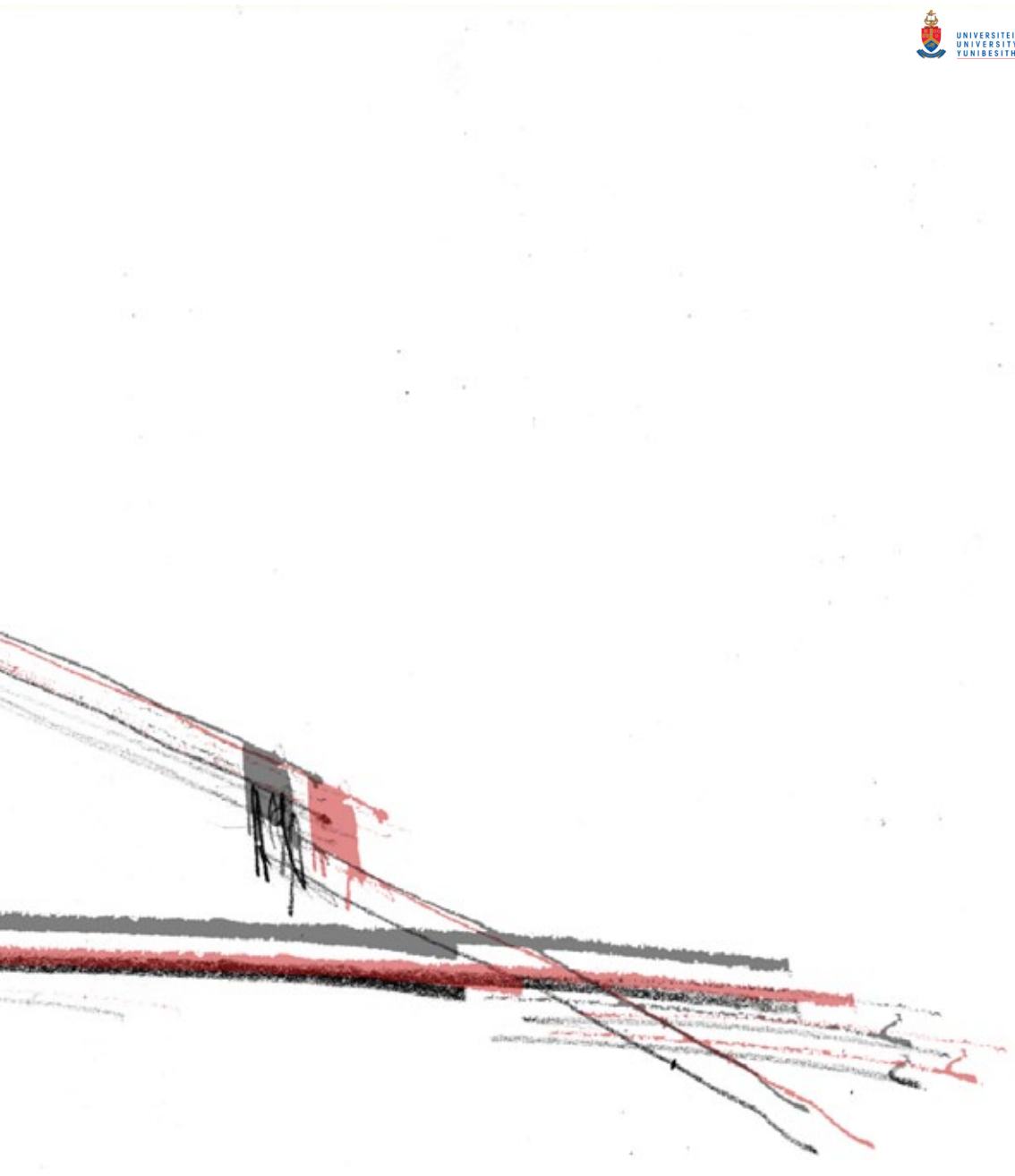


Fig. 2.10 Figure 1 Hierarchy of Defensible space. (Newman 1972: 9)

Fig. 2.11 Initial Concept drawing by Author indicating basic forms.
The gradual step up respecting the Synagogue site with stronger mass backing the adjacent site.



Concept Formation

The following conceptual approaches will be used to determine the response to the urban condition. These statements will support the three design informant as the author begins to unpack how they are to respond critically to the current condition so as to provide spatial solutions that begin to clarify the meaning of the urban experience.

The three design informants are:

- **Functionality within Government**
  Reshaping the public face and interface
- **Urban Response**
  Creation of spatial Milieu
- **History**
  Emphasizing sense of place

These will be dealt with the through extrapolations of the spatial implications of concepts illustrated on the following page, thus beginning to build toward a three dimensional strategy which will be applied sensitively within the context of the chosen site.

Conceptual Responses

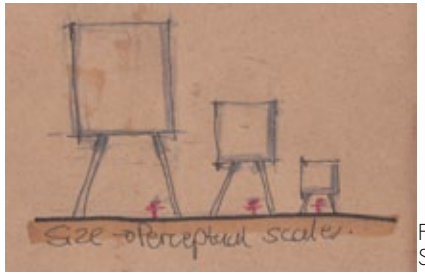


Fig. 2.12 Varying Scales

Fig. 2.13 Visual Connections

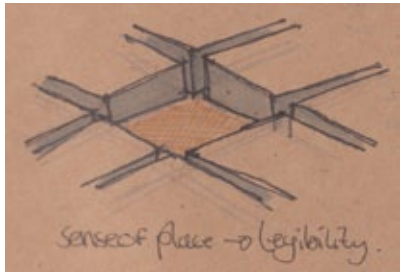


Fig. 2.14 Sense of Place

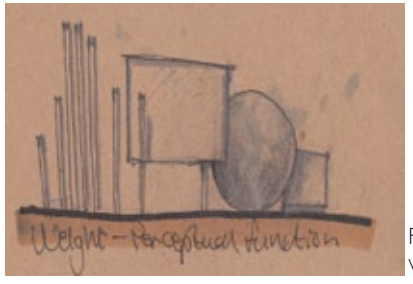


Fig. 2.15 Perceptual weight variance

The Following are therefore the extrapolations represented a-contextualy, but will be brought together within the next chapter within the context of the site. They serve as an underlying framework guiding the design and its exact applications. Throughout the process they will be referred back to support the resolution of the building form and its response to the urban condition.

•INVERSION AND LEGIBILITY

Definition of and mediation between stark boundaries

Stark boundaries are to be blurred to provide space that is less prohibiting, even if only on a psychological level through framed narratives and visual connections. Definition of space will be attempted through the introduction of level differences and distinct spatial variances so as to clearly articulate spatial delineation.

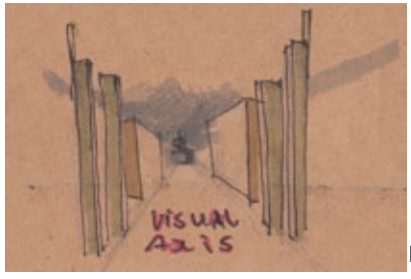


Fig. 2.16 Visual axes

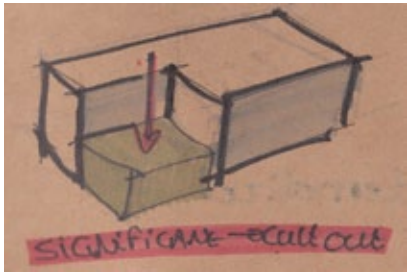


Fig. 2.18 Emphasizing significance

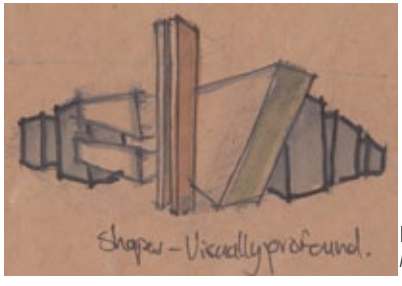


Fig. 2.17 Breaking Monotony

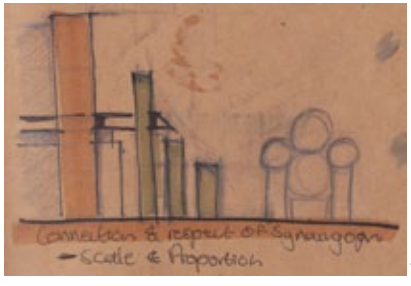


Fig. 2.19 Respect of Scale and Proportion

•SENSE OF PLACE

Contextual perception

The need of the user to familiarize themselves in the urban experience will be addressed through the introduction of visual mechanism that clarify various zones, like that of safety, public and private through means of visual axes, heights and spatial orientation.

•MEMORY

Response to past - Sense of place

Within the framework of the heritage charters discussed in Chapter 3 the spatial ramifications will be dealt with through simple articulation of memory as well as a clear understanding and spatial explanation of the layers of significance, giving a hierarchy of importance through spatial narratives.

Fig. 2.20 Freedom defined by boundaries

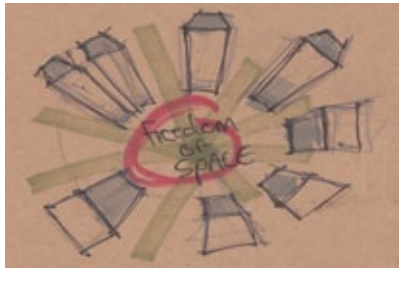


Fig. 2.21 Freedom within space

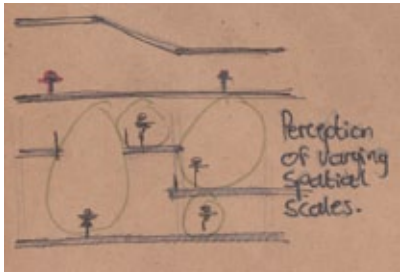


Fig. 2.22 Variance of Spatial Volumes

Fig. 2.23 Place of Meeting

•PUBLIC VOICE

Freedom of assembly or association

The levels of freedom that the user has within the space will be made clear through articulation of experience and delineation of boundaries.

•UNITY

Social cohesion - Tension and dialogue

This space should react to monotonous urban fabric and provide a cohesion point for various pockets of activity to find meaning. This will be done through the creation of spatial distinction, the opening up of public space as well as the reactivation of the street edge around the space created.

Conclusion

Many of the principles encompassed within these statements overlap, which provides the opportunity for rich theoretical meaning within each spatial expression. This gives opportunity to tackle multiple problems with a single solution and articulate the three informants: functionality within government, urban response and history from a macro level right down to a micro level. Through these spacial mechanism and specific response to the site via these three informants, the site will begin to respond in a manner that adds to the urban fabric.

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Fig. 3.1 Three dimensional view of the site in its context in the CBD

SITE AND RATIONALE 03

Site Location

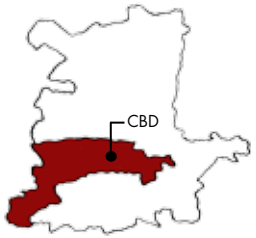
The Site is located on the corner of Paul Kruger and Struben Street in the Tshwane/ Pretoria CBD. Paul Kruger Street is the North south Axis of the city centre, with Struben Street, the Government Boulevard, running towards the Union Buildings to the East. The site is centrally located in the Northern part of the Pretoria CBD and therefore is an ideal location for the development of a cohesion catalyst. The rationale behind the site will be further discussed throughout the chapter.

Fig. 3.2 South Africa

Fig. 3.3 Gauteng

Fig. 3.4 Tshwane

Fig. 3.5 Central Western



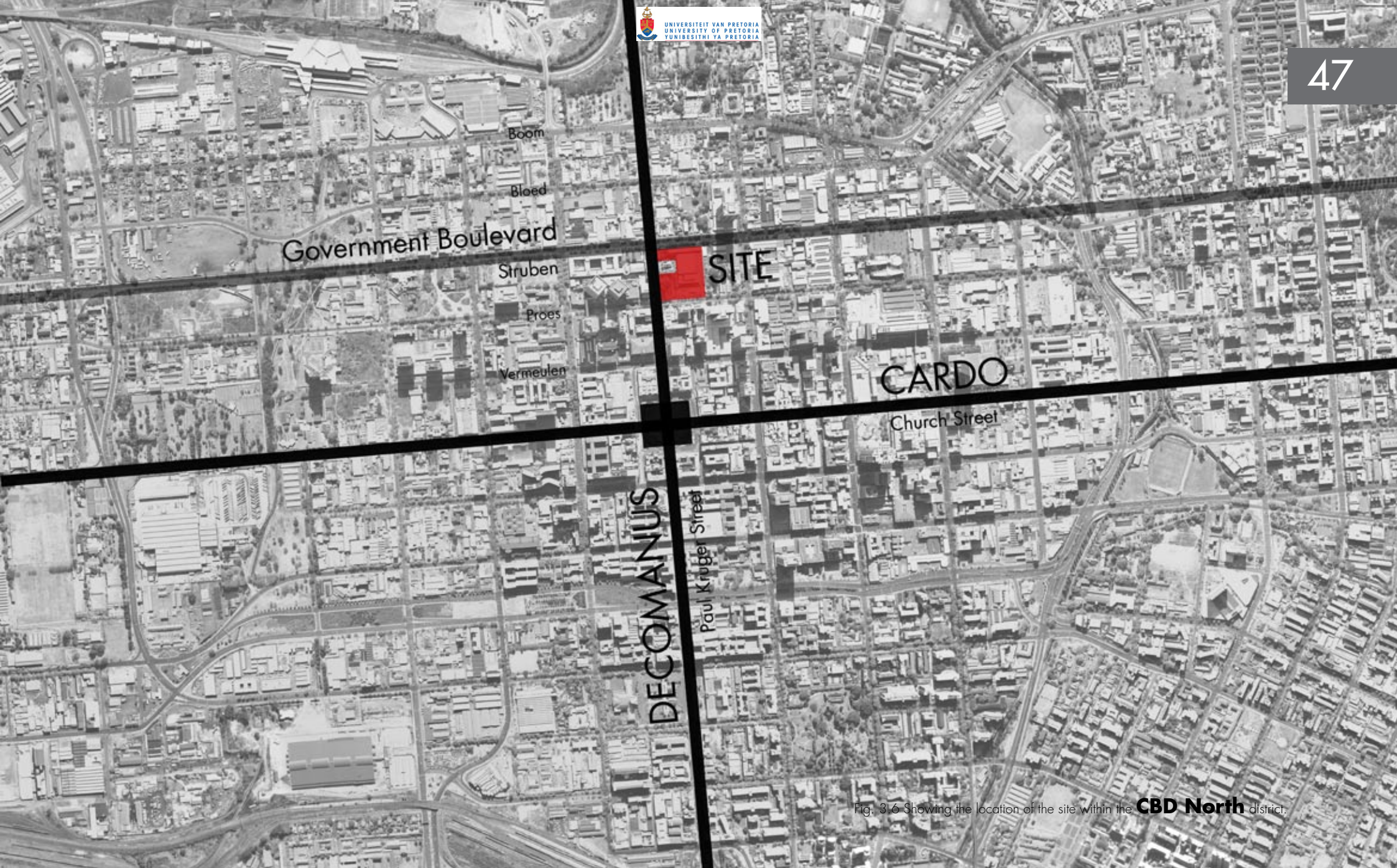


Fig. 3.6 Showing the location of the site within the **CBD North** district.

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Fig. 3.7 Showing the location of the site
In the CBD North Precinct

Site Rationale

- **Location within CBD and Tshwane**

- Within the historical and theoretical premises, the site is centrally located within the Northern part of the inner city and therefore acts as a perfect node of cohesion within is context.
- The site is also centrally located in amongst numerous government functions and due to its programmatic response in terms of locality and proximity, is positioned to provide the necessary auxiliary functions in walkable proximity and therefore fulfill the needs of a walkable precinct and an interdepartmental connector.
- The site is centrally located in the Tshwane district and close enough to the East where a lot of economic activity happens.

Fig. 3.8 Showing Proximity of Site in Relation to Church Square and other Open Spaces within the CBD

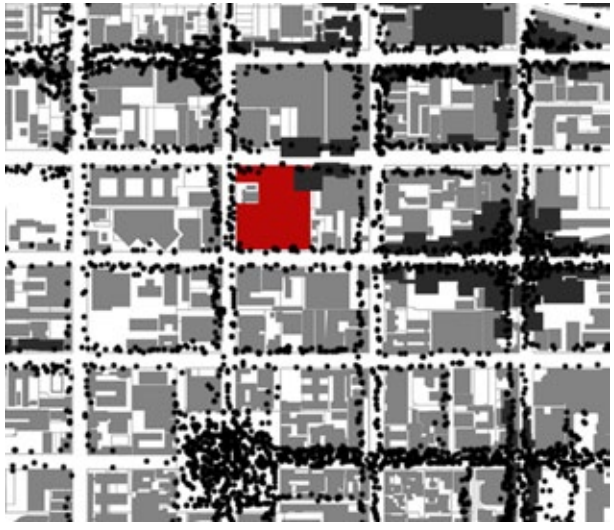


Fig. 3.9 Showing Existing Taxi and Pedestrian Activity within the Northern CBD

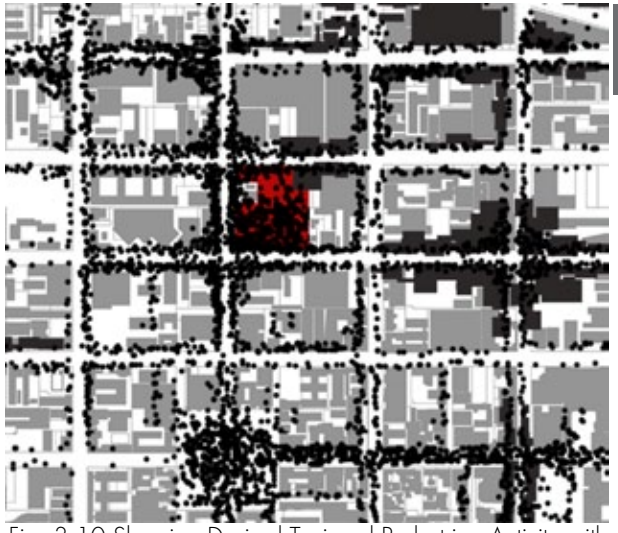


Fig. 3.10 Showing Desired Taxi and Pedestrian Activity with the Introduction of the Proposed Intervention

- **Proximity to Church square**

- The proximity of the site to Church Square as well as its history of housing the treason trials make it suitable to the new function. Its location two blocks North of Church square makes it within ten minutes walking distance and therefore optimally positioned.

- **Movement Tensions**

- The site will form a strong link between pedestrian activities due to transport node in close proximity such as Bloed Street taxi rank. There are already activity nodes highlighted in Figure 3.9. The site seeks to plug in and encourage more experiential intensity as well as cohesion of these existing activities.

Fig. 3.11 Showing Important Axis through CBD

- **Junction of Important Axis**

- Considering the aims of the thesis to address government unification, the site sits on the crossing of two very important axis. The first being Paul Kruger which is part of the Cardo/Decomanus and historically very rich in heritage, which will be unpacked in the later chapters. The second being the proposed government boulevard ,being Struben street which connects to the union buildings, thus binding the government and historic heritage of governance at their meeting point.

- **Urban Densification**

- Within medium to long term vision, the site forms part of a crucial area to be addressed in terms of urban densities in relations to the core of the inner city. It is therefore proposed that the SITA building be demolished to make way for higher urban densities as well as the envisioned opened space. This will be further discussed later in the next chapter.

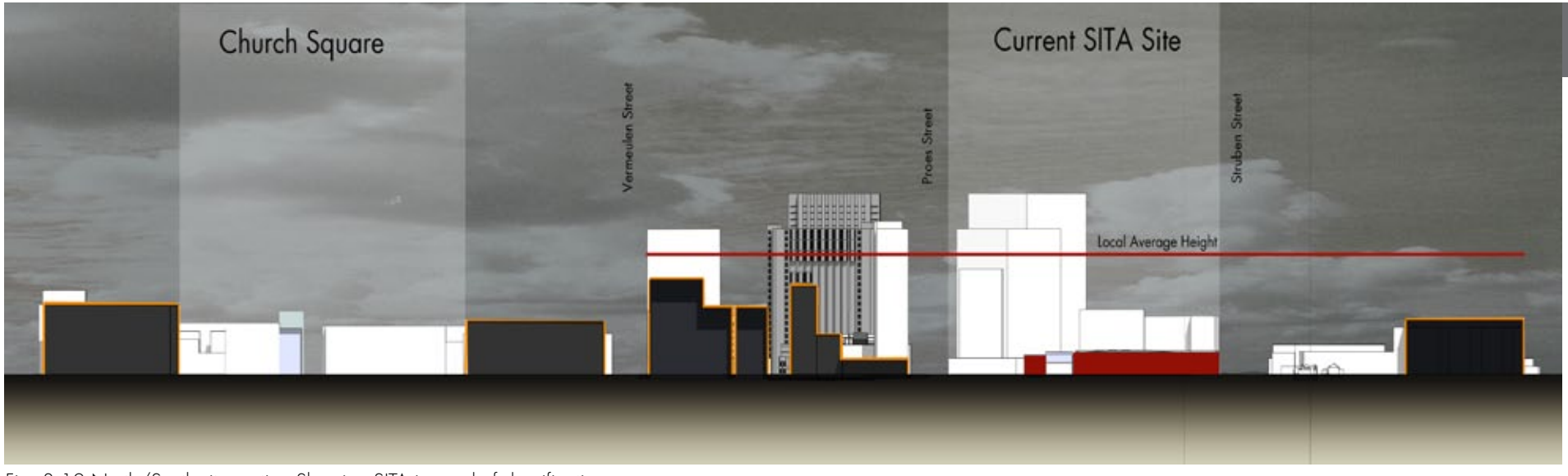


Fig. 3.12 North/South site section Showing SITA in need of densification

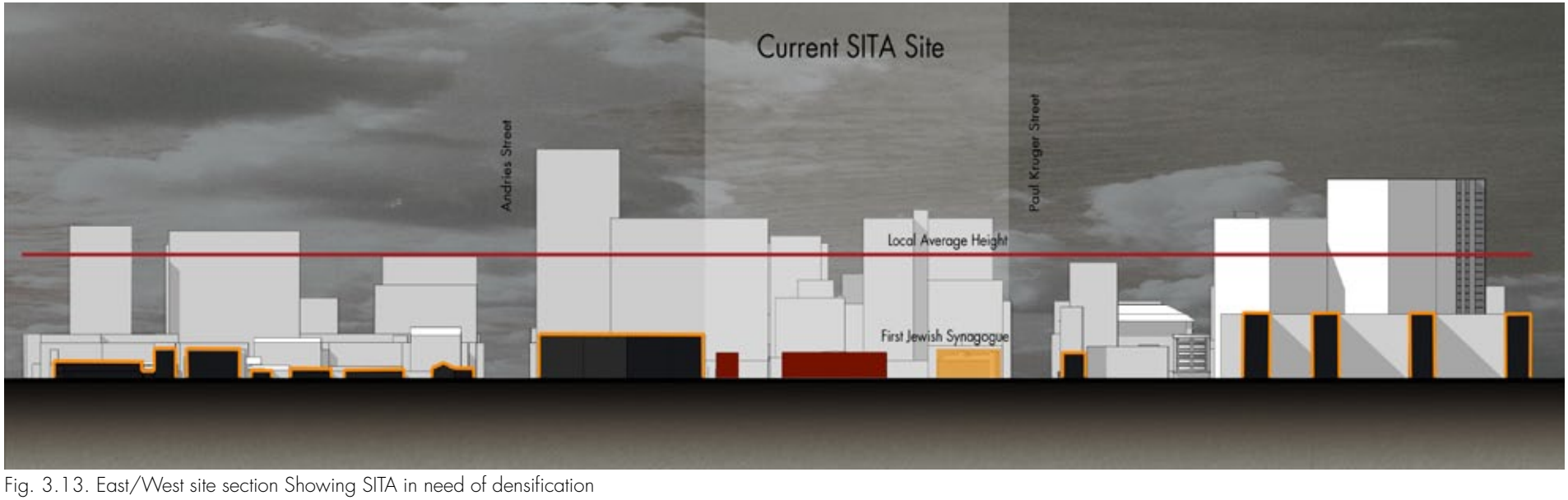


Fig. 3.13. East/West site section Showing SITA in need of densification

GOVERNMENT BUILDINGS WITHIN WALKABLE PRECINCT

1. Sa National War College
2. Old Government Printers
3. Dep. Of Basic Education
4. Department Of Health
5. National Library
6. State Information Technology Agency
7. Government Printers
8. Correctional Services
9. Telkom Towers
10. Department Of Transport
11. New Court Chambers
12. Law Society Of Northern Provinces
13. High Court
14. Palace Of Justice
15. National Youth Commission
16. Old Department of Health
17. Government Treasury
18. Nat. Film, Video & Sound Archives
19. Statistics South Africa

Government Owned/Used
Heritage Structures

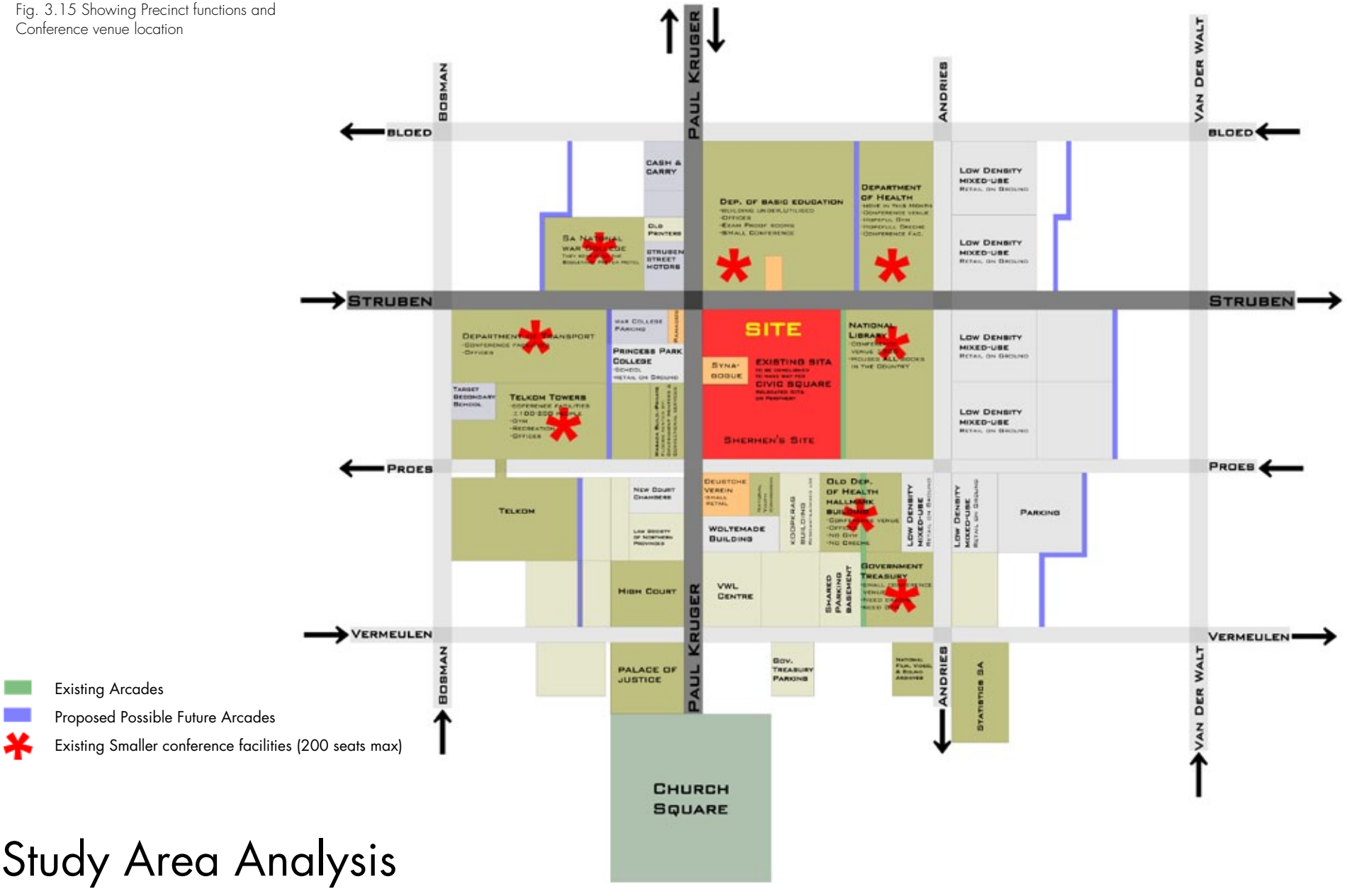
Fig. 3.14 Showing Government Buildings in close Proximity to site

Block Programme

The auxillary needs of various government departments within the study area were formulated through individual interviews with the civil servants working for the various departments in the immediate vicinity of the site. The results provided programmatic impetus. Employees from the following departments where interviewed either on street or in their offices depending on the level of access granted by each department. This aided the graphic analysis (shown on the next page) within the Study Area and highlighted the need for a Larger Conference and Break-away Venue acting as Cohesion Point for the Northern CBD

- The National Department of Basic Education
- The National Library
- The Department of of Health
- The South African Nat. War College
- The Department of Transport
- The Department of trade and Industry
- The National treasury
- The Department of Agriculture
- Telkom SA Limited

Fig. 3.15 Showing Precinct functions and Conference venue location



Existing Arcades

Proposed Possible Future Arcades

Existing Smaller conference facilities (200 seats max)

Study Area Analysis

Functional Requirements

The interviews facilitated the formulation of a program that caters for the auxiliary needs of government employees as well as the public interacting with the government departments. The inherent need for security was highlighted as well as general lack of "stable" amenities within walking distances of Government departments. These amenities being secure enough to serve the public in the long term.
What is therefore needed is a "precinct anchor" within walking proximity to various government departments that will facilitate their needs for support and amenities while and most importantly also creating a lasting memorable sense of place. This necessary prominence would only be possible through partial buy-in from the government. This would ensure not just short term business opportunities to support government functions but rather facilitate credible contributors to lasting anchor community uses, amenities and public spaces for workers and visitors to the area.
According to Maslow's Hierarchy of Needs (www.edpsycinteractive.org) before the realms of private safety lie the need for self actualization, this being played out through the need for a sense of belonging and the need to be heard. These deep-seated human needs call for an intervention that would offer room for both the individual and corporate voice, as well as a place where the individual and the collective can fulfill these needs mentioned above through expression within the realm of a space that encourages public participation and freedom within the urban environment. This public space should be rich in symbolic meaning and expressive spatial potential and therefore act as a catalyst for unity and platform for public protest and human rights. These needs afforded through spaces that provide mediation between extreme public and extreme private realms thus giving the public user the opportunity of inclusion albeit on a metaphysical level through visual connections or partial access to intermediate spaces.

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Fig. 3.16 Composite Image of the Synagogue by the Author

HISTORY AND THE SYNAGOGUE

The layers of the rich site and inner city history should be embedded in the built heritage of government. Therefore in order to create a square for public expression and understanding of the progression of human rights, the relationship to the architectural heritage of government and public architecture in the larger context must be understood. These layers serve as design informants either through direct form expression or through general respect of the historic precinct within today's context. The brief history of the precinct is discussed in this section as an informant to the design.

Paul Kruger Street

Paul Kruger Street was originally named Market Street and acted as the significant North South axis of the CBD. The streets name was changed to Paul Kruger Street during the ZAR presidency of 1883 - 1900. (Smalberger, 1997: 52) Currently Paul Kruger Street is the focus of regeneration through frameworks like the "Pretoria Inner City Intergraded Spatial Development Framework."

The following landmarks form part of the Precinct Heritage.

- The Old Jewish Synagogue (fig. 3.16)
- Jansen House (Fig. 3.18)
- The Panagos Building (Fig. 3.19)

The latter two don't have direct impact on the site but form a part of the richness of the study area and therefore add weight to the sense of place. The Synagogue and its treatment will be discussed as it has a greater impact on the design decision due to its proximity and direct relationship.

Fig. 3.17 One of the First Photo's of Paul Kruger Street

Fig. 3.18 Jansen House, forms part of the Department of Basic Education Site

Fig. 3.19 Panagos Building, opposite Jewish Synagogue on Paul Kruger Street

Strategy around Specific Heritage Charters

Due to the proximity to historic buildings, heritage charters guide the design process. The following charters were looked at as they have specific bearing on the context.

BURRA CHARTER

This Charter provides guidance for conservation of heritage resources. It encourages a cautious approach around specific resources and advocates the need to conserve for future generations. The following points are applicable and form part of the conceptual response to the site and the heritage resources mentioned above and more specifically with the Jewish Synagogue being within the block proposal (www.saia.org.za/documents/The%20Burra%20Charter.pdf)

- Maximum care of heritage resources and minimum change. This will directly inform the response to the synagogue situated within the block plan.
- Safeguard and Retain cultural significance
- New use, must be compatible, enhance & respect.
- Retain visual setting and other relationships within the visual catchment
- Association and meaning-connections between man and place

WASHINGTON CHARTER

HISTORIC TOWNSHIP AND URBAN AREAS

This Charter focuses specifically on the conservation of historic towns and urban areas. It seeks to preserve the historic character as well as the relationships of historic sites with their surroundings. It encourages the participation and involvement of communities and therefore is applicable in encouraging social consistency. It also encourages a contextual approach to each historic environment therefore encouraging specifically responsive interventions (www.international.icomos.org).The following, as above, are specific points from the charter relating to the site which were helped the conceptual approach.

- The Historic character of the specific heritage resources should be retained
- The relationships between buildings and open spaces should be respected.
- Respect the formal appearance of surrounding buildings.
- The relationship between urban area and its surrounding setting and existing spatial layout should to be respected, especially in terms of scale and lot size.
- The introduction of contemporary elements should be done in harmony with the context.

Church Square

Fig. 3.20 Historic Photo of Paul Kruger Statue on Church Square

Church Square, originally named Market Square, was a vibrant commercial centre and was the heart of the town, where people interacted, did business transactions, caught up on news and gossip and watched political goings on(Allen,V. 22-24). This was the case until the 1880's where the centre was moved East to the Site of the Opera house. In 1990 the square was redesigned with hard surfaces where an opportunity was missed to capture the essence of its original character. This made it in essence a huge traffic circle. (Ibid. 37)

As a result, this thesis seeks to address part of this problem by giving back to the city its civic heart, where once again this freedom of meeting can be accommodated.

Old Jewish Synagogue

Fig. 3.21 Historic Photo of the Old Synagogue on Paul Kruger Street

The Synagogue's history will be discussed as a background to the study. This will inform the design on a block level. It will however be respected as a landmark with the specifics discussed below. The Synagogue will be respected as a landmark in the urban block design. The specifics will be discussed further in the chapter.

Historic Significance

The Jewish Synagogues was built between 1897 and 1898, with the bulk of the money donated by Samuel Marks.(Ibid. 45-55) According to the Author's interview, with Manfred Nocomowitz, a member of the Pretoria Hebrew Community,(May 2010) the synagogue's significance as far as a Jewish icon is minimal. The two Jewish communities have moved away from the synagogues original location both the orthodox and newer Jewish communities have their own buildings and do not see much significance in the old landmark. As far as the Jewish community is concerned the community and where they currently meet is more important than a historic building. Therefore it would be safe to say that the significance of the synagogue as a place of worship is more a significance of memory and therefore would be predominantly acknowledged as such.

Fig. 3.22 Showing Nelson Mandela at the Old Jewish Synagogue after the Treason Trials

Brief History of the Treason Trials

In 1955, A general Congress of the people was held to draft a Freedom Charter. After much defiance of the strict Apartheid laws, Police broke in on this and arrested some of the activists. In 1956, however, a few months later the police arrested 156 leaders of the congress including, Nelson Mandela, Oliver Tambo, Walter Sisulu, Joe Slovo, Ruth First and Lilian Ngoyi, who where held at the Old Fort Prison in Johannesburg, known as Number Four, for two weeks before being transferred to the Pretoria Prison. Most of the 156 were acquitted with the remaining 30 put on trial for treason. This dragged on till 1961, where they too were acquitted (www.constitutionhill.org.za.) In 1952 the Jewish Synagogue in Paul Kruger Street was expropriated with the purpose of erecting a new supreme court. Subsequent to this in 1956, alterations were done to it to convert it to a Constitutional Court in lieu of the pressing political turmoil at the time. (Allen, V. 55) From 1958 to 1962, the treason trials were held at the Palace of Justice and the Jewish Synagogue, with the majority except Nelson Mandela, being acquitted. (www.law.umkc.edu)

Synagogues Relevance Today

Considering that the Rivonia Trials are one of the most important events in the countries history, the significance of the Synagogue therefore has since shifted. This in no way down plays the synagogues significance but rather buttresses it as a crucial icon within our countries painful past. This forms a necessary conceptual informant to express liberation and the public voice. It forms an important basis for heritage and spatial decisions. These historic informants will therefore be used as a first level of investigation whereby space is created that gives back to the city in terms of political heritage and the ensuing spatial expression of freedom.

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Fig. 4.1 Showing Initial Concept Drawing of Inversion of Site

BLOCK AND CONCEPT DEVELOPMENT 04

Fig. 4.2 Photo of Men making wire Radio's
(www.blog.urban-africa.co.uk)

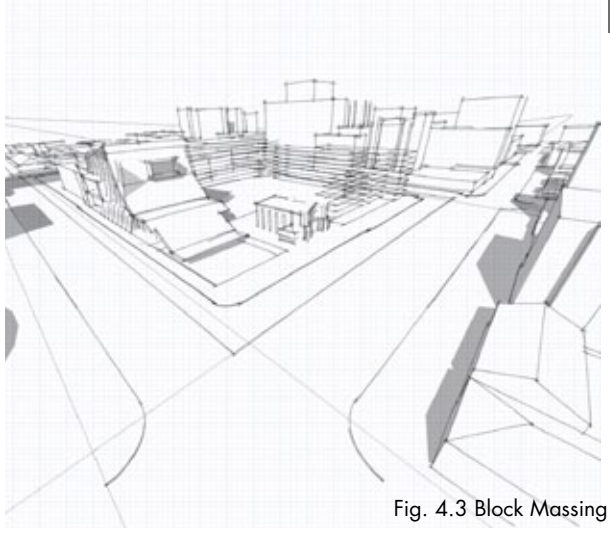


Fig. 4.3 Block Massing

Block Programme and Client

The block programme for the site was arrived at through field research and interviews conducted with various government departments within the study area. Employees from these government departments where interviewed to determine what the strengths and weaknesses are of the precinct as well as what auxiliary needs they have that need to be provided for in the area. (See list in previous chapter).

The interview with the National Treasury proved particularly helpful as departmental budgets run through the national treasure for approval. Key points mentioned being:

- The need for a stable provider of auxiliary functions
- The need for new break away venue as well as a larger conference venue
- The need for interdepartmental connectivity and awareness

The need for inter-connectivity within the government departments as well as that of walkable precincts calls for the possible introduction of an arcade system within the precinct, which is proposed on a block level (chapter 3) and should be addressed by further developments into the future.

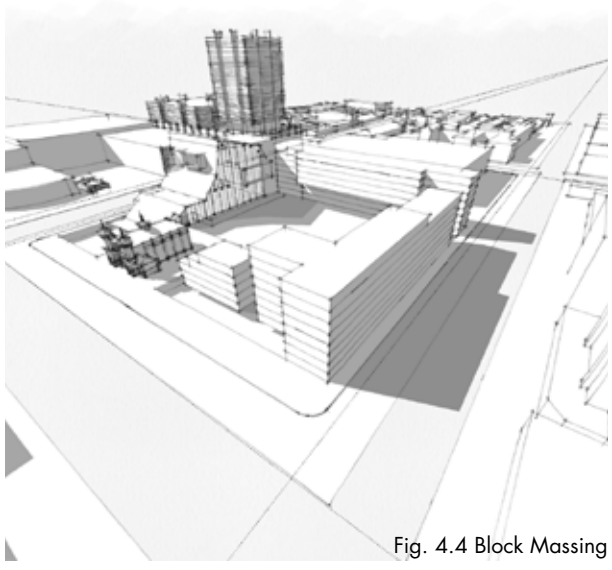


Fig. 4.4 Block Massing

SITA Demolition

As an introduction to the Block Programme, the need to demolish the SITA building is highlighted as demolition is very costly. The decision to reappropriate this site as opposed to many other lots within the CBD has been explained in the previous chapter, however the strategy to give back what was taken is highlighted. This will be done through rehousing the SITA functions in a smaller footprint, while creating a much needed edge to the public square and height for the proposed urban density.

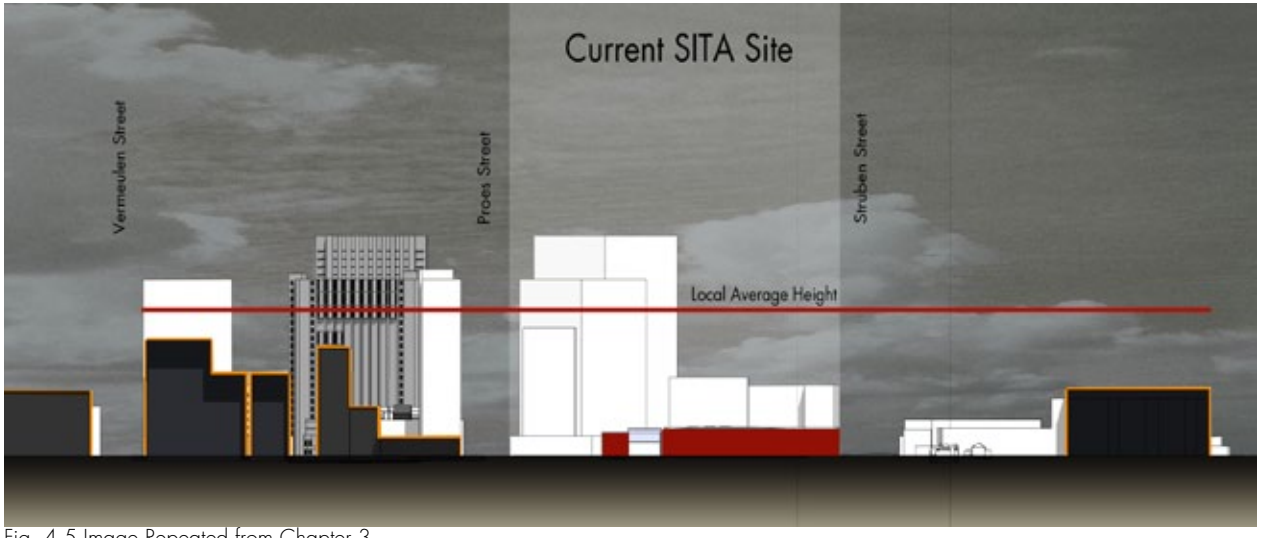


Fig. 4.5 Image Repeated from Chapter 3,
Showing the Urban Density of the SITA Building

Fig. 4.6 Image showing the SITA building and
Mass relationship in proportion to its context

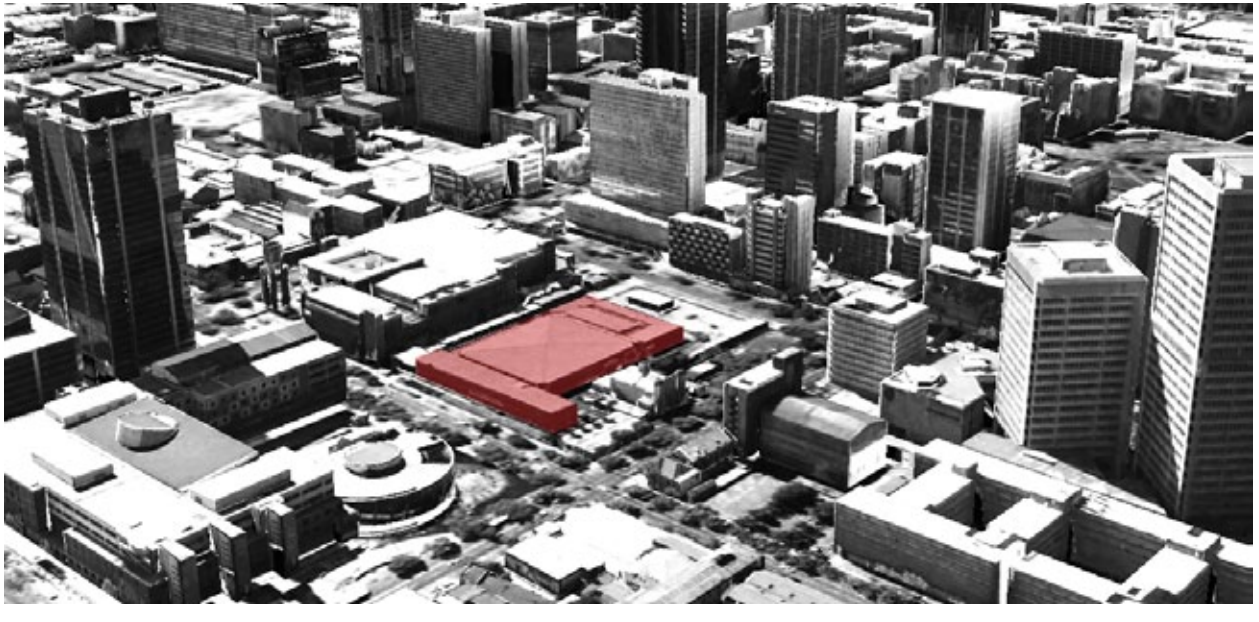


Fig. 4.7 Photo by Author Showing the view of the Existing SITA Building from the corner of Paul Kruger and Struben Street

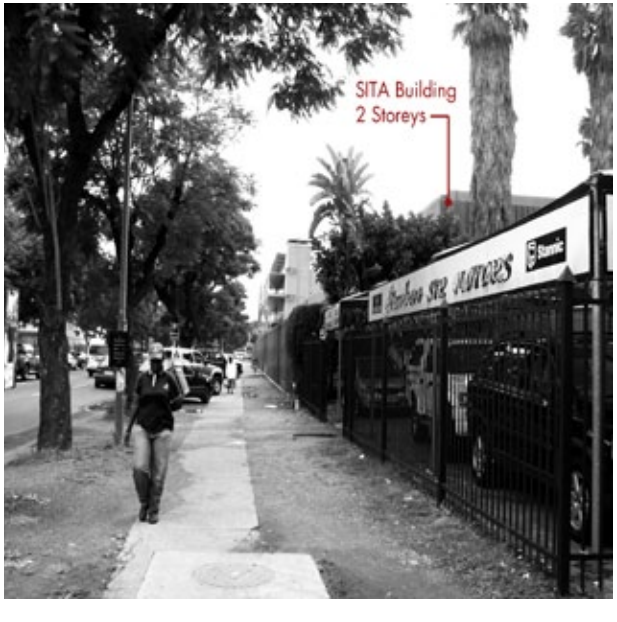


Fig. 4.8 Photo by Author Showing the view of the Existing SITA From Proes Street

1. Existing Used car Garage to be appropriated
2. Jewish Synagogue Heritage Site
3. Extent of Existing Sita Site to be Demolished and Rehoused
4. Existing delapidated Open Lot, Currently used as Parking

Fig. 4.9 Showing Block With Extent of Sita Demolition

SITA Demolition and Relocation Area Statistics

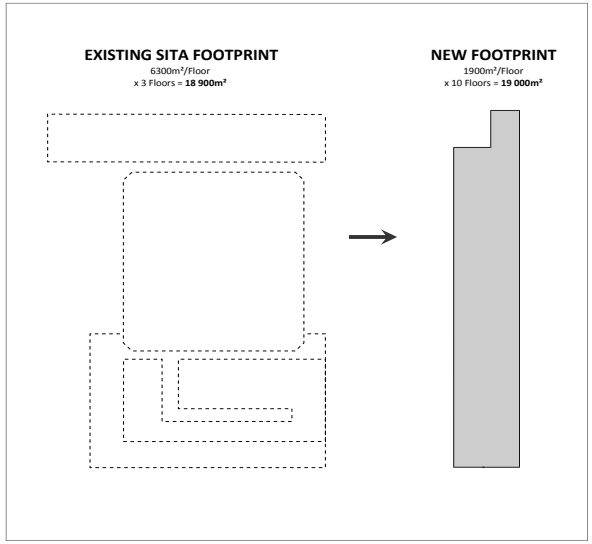


Fig. 4.10 Showing Relocations Area Statistics

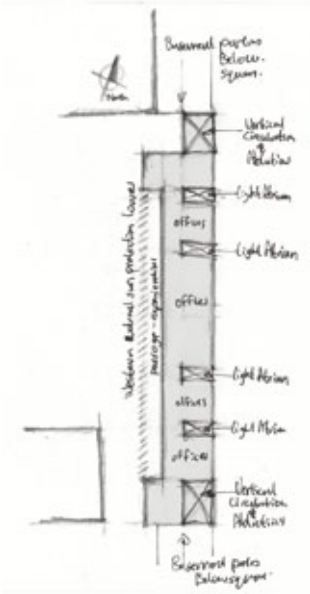


Fig. 4.11 Possible layout of SITA building with very narrow footprint

Block Parking

Parking for the Block will be provided for under the public square with vertical access to square level. The number of bays provided for is determined with two factors in mind, the first being the existing and proposed parking catchment by Regabitsa Tshwane framework, providing merely a framework in this case from which to make assumptions. The second factor being the hope that through similar interventions that the CBD will become more pedestrian friendly and therefore the need for parking will be reduced. The Parking is therefore provide for at blanket rate of one and a half bays per hundred square metres of usable area for the block.

Fig. 4.12 Showing The Existing Parking Catchments in Yellow with the Regabitsa Tshwane proposed Parking catchments in red.

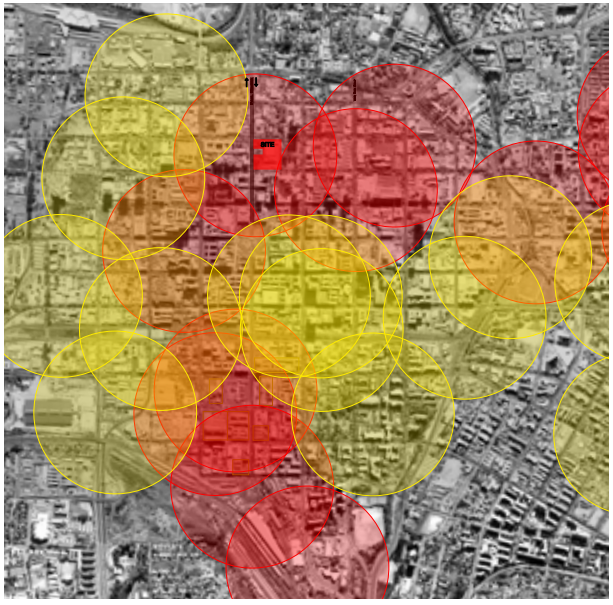
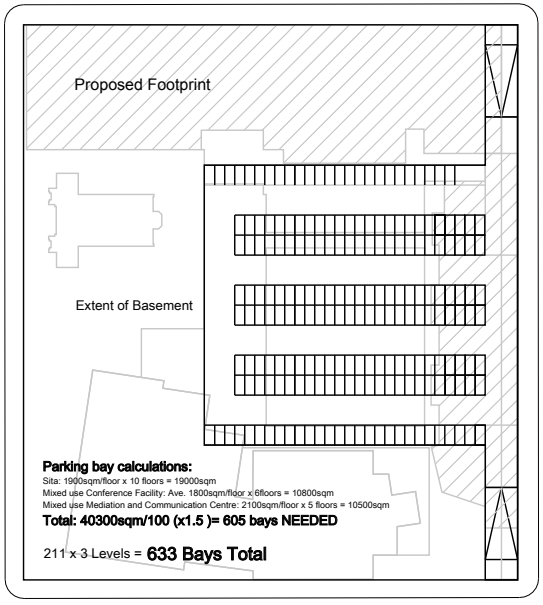


Fig. 4.13 Showing the Proposed Parking layout below the public square, servicing all buildings around the square.



BLOCK MINI FRAMEWORK

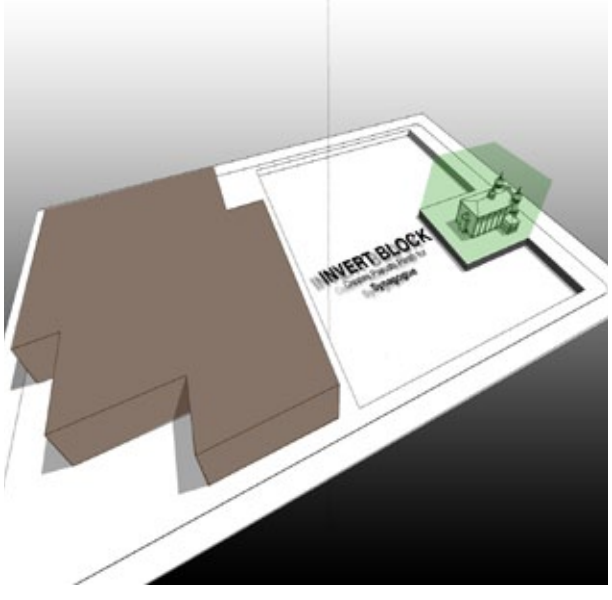
Together with another student, the block was developed so as to encompass the larger urban and theoretical vision of a break away civic square. This will provide for the auxiliary needs of the surrounding government departments and serve as a node within the northern part if the CBD for not only government departments but the general public as well.

Literal Inversion of the Site

As part of the Concept discussed in Chapter 2, the idea of Inversion was translated literally to achieve the literal inversion of the block. This is done by sinking most of the public square to below grade. This will be to a depth of a single storey at the lowest level to accommodate various functions. This creates within itself a defined space that is perceived as being apart from the rest of the fabric, due to the change in level, however still connected as a result of the invitation extended by ramps, stairs and the building envelopes.

This creates a pseudo plinth upon which the Jewish Synagogue site is in essence "raised" thus emphasizing it as a historic landmark and giving it a far greater perceived importance. The Synagogue site will be dealt with in detail by the student working on the southern side of the Block.

Fig. 4.14 Showing the inversion of the Block, creating a pseudo plinth from the Synagogues site



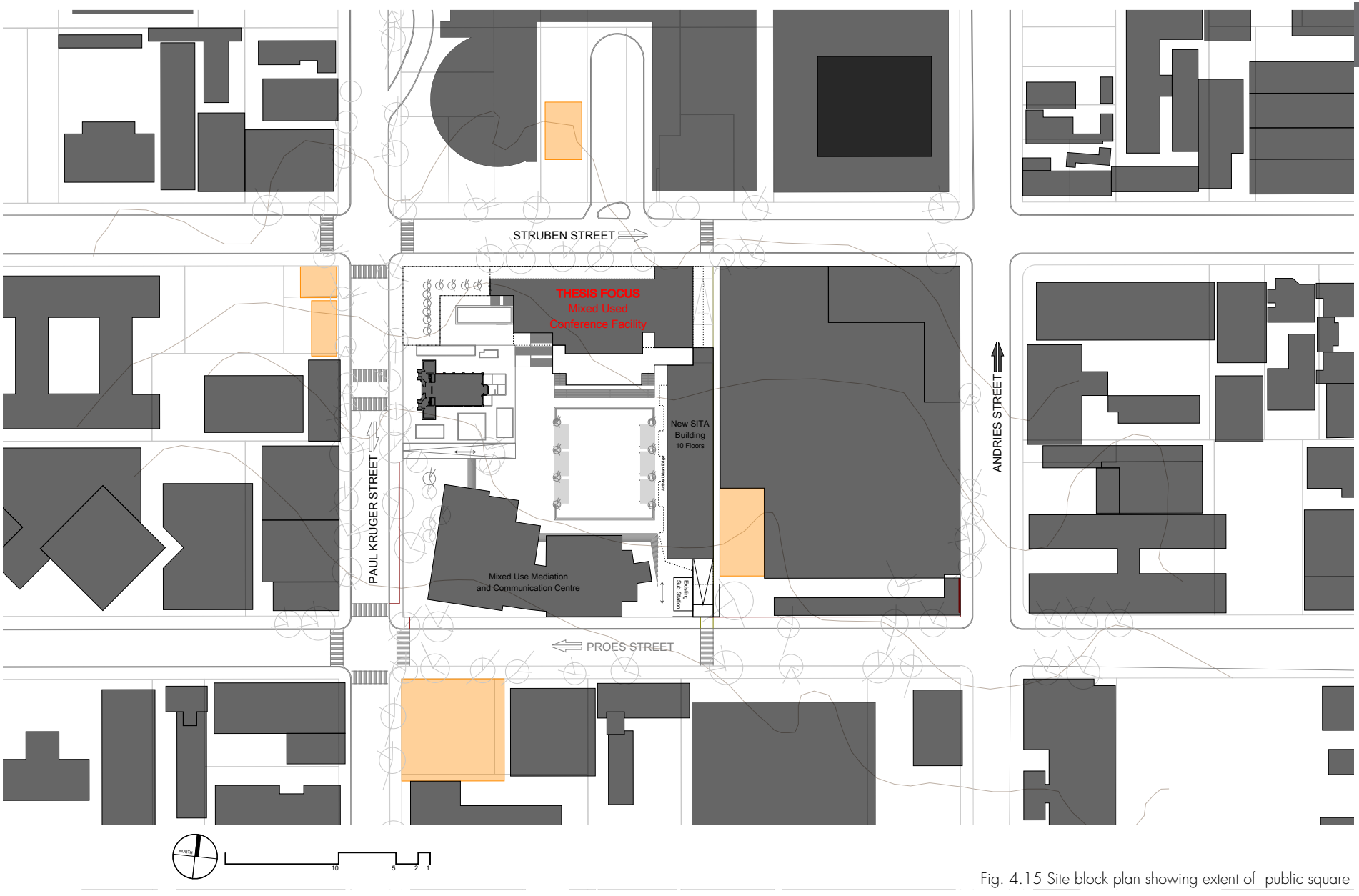


Fig. 4.15 Site block plan showing extent of public square

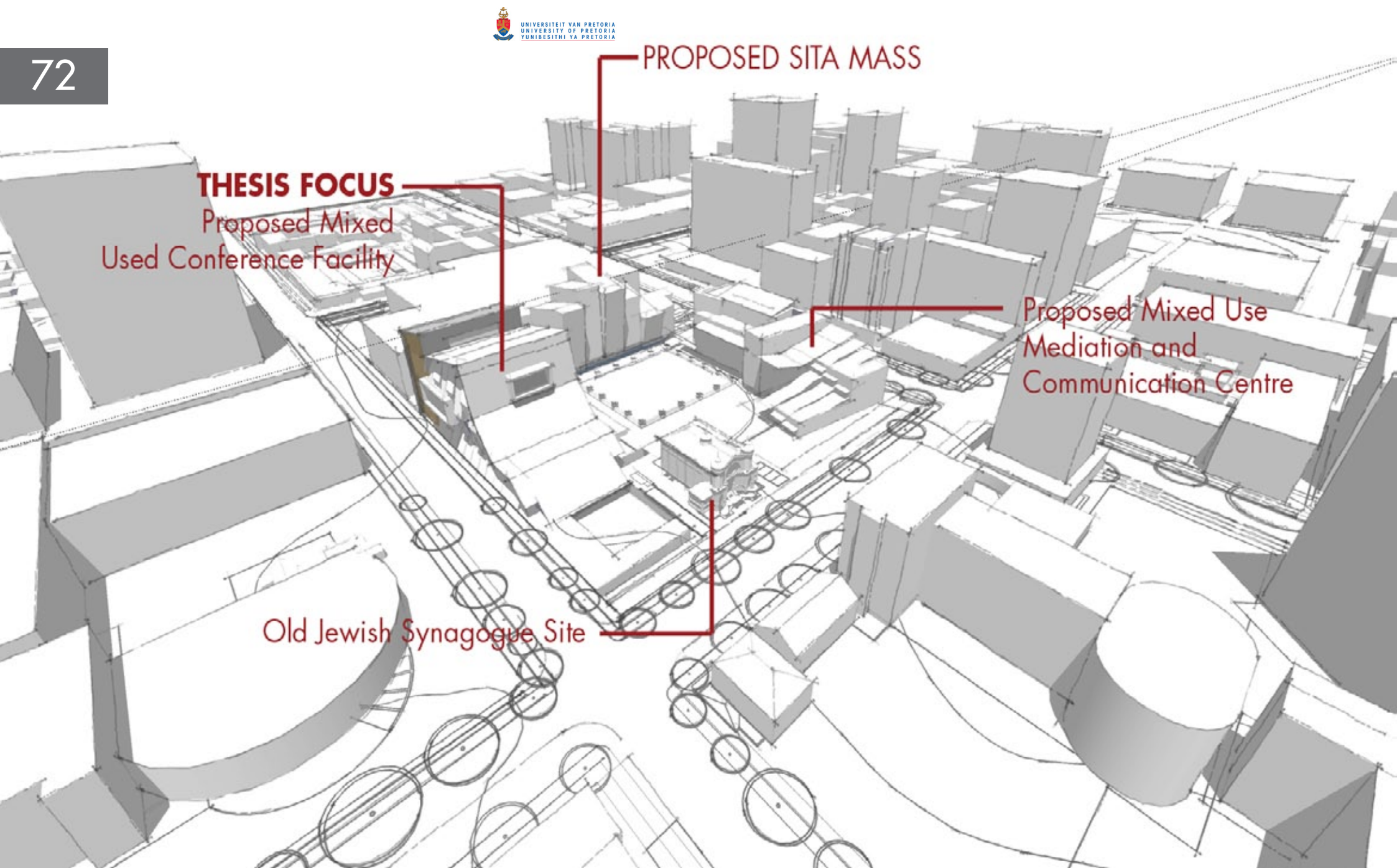

PROPOSED SITA MASS
THESIS FOCUS
Proposed Mixed
Used Conference Facility
Proposed Mixed Use
Mediation and
Communication Centre
Old Jewish Synagogue Site

Fig. 4.16 Showing three dimensional massing of block within context.

Building Programme

Conference and meeting venues
A larger conference venue seating up to 400 people at full capacity, offering a central location that would cater for larger functions such as for example department functions, interdepartmental functions and official events such as tender meetings with city of Tshwane which require a lot of space and currently are housed at the TUT campus toward the north west of Pretoria CBD. This venue can also be used for performances in that there is provision made for rehearsal and dressing. Also provided will be two smaller break-away venues without fixed seating that will be sub dividable so as to cater for various size functions and meetings up to 150 people each.

Entertainment /24 hour factor
In order to maintain activity as well as economic growth, a "24 hour" component will be introduced so as to provide almost continual activity and on street surveillance and thus increased safety. This will be done through the possibility of performances running into the night as well as restaurants one the various levels within the building and square

Retail
Retail specifically relating to the conference venue will be provided for. This being a proposed Copier and Courier service as well as a bookstore and news agency located within close proximity to the meeting venues.

Crèche
This will be provided for, as many departments do not cater for working mothers. This function will be house at the highest level outside of the public realms to ensure safety for the children

Gym
Currently gyms within the CBD are either private and exclusive or "fly-by-nights". This gym will be a smaller facility and will be open on a membership basis to the general public and in order to ensure longevity an established chain like Virgin Active would be encouraged to buy in. The basic gym facilities will be provided for at the highest level as well, to be outside of the public realm.

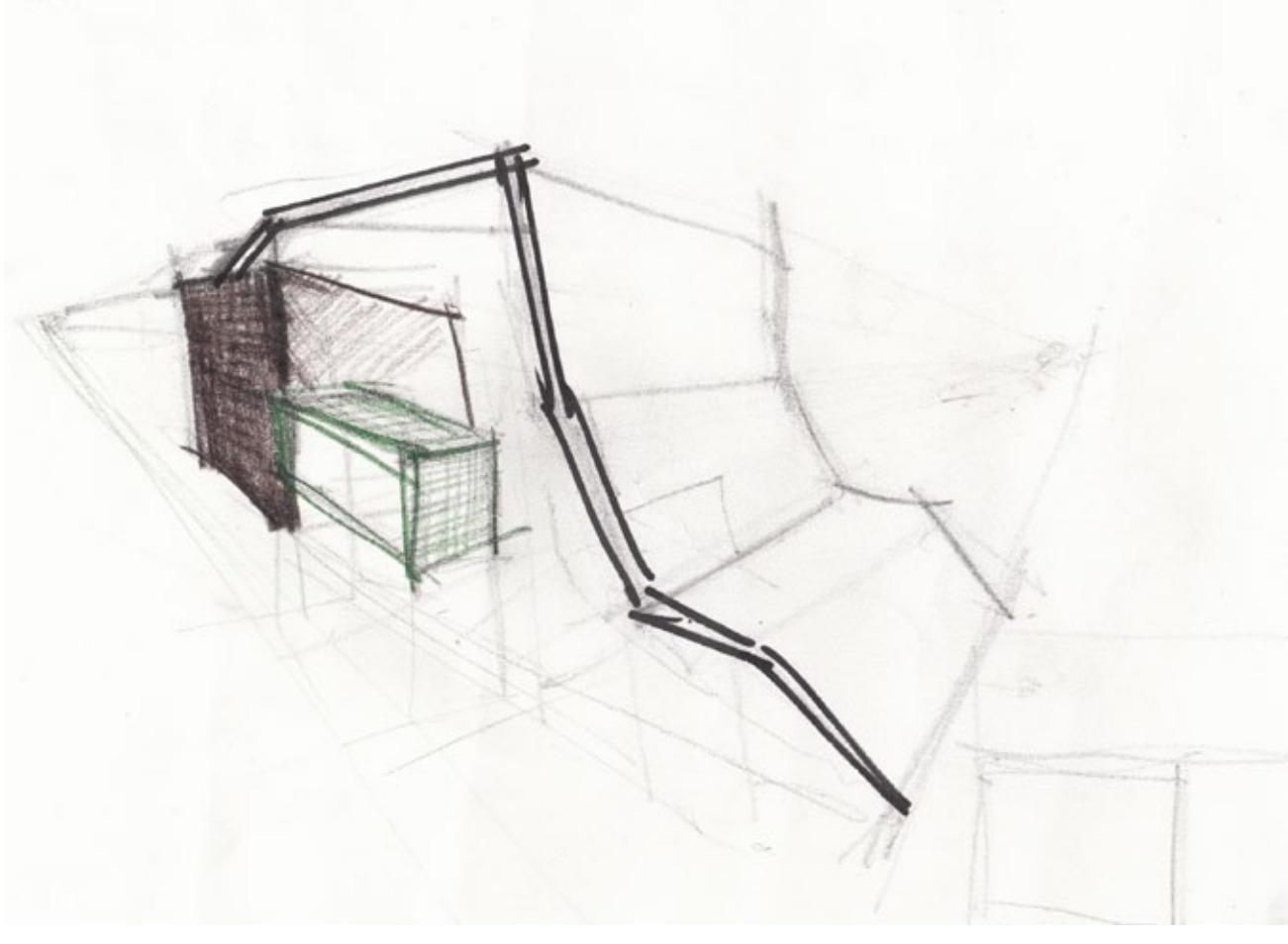


Fig. 5.1 Early concept sketch showing the "lighter" wrapping and the "heavier" section and their conceptual junction.

DESIGN DEVELOPMENT 05

Precedents

Due to the nature of the design problem various precedents were looked at to inform different aspects of the design. Some precedents effected form and spatial implications whilst other had an influence on the material and architectural language.
Each precedent will be briefly introduced with together with the implications it had on the proposed intervention.

Musee National Des Beaux-Arts Expansion

Architect: Rem Koolhas
Location: Quebec Canada
Date: Competition 2010, Completion proposed for 2013

Fig. 5.2 www.oma.eu

Fig. 5.3 www.oma.eu

Fig. 5.4 www.oma.eu

This project is currently at the design development phase with the building being the winning entry in a design competition for the site. The addition, being the museum's fourth building is on a very complicated site. It is composed of three stack galleries that step away from the heritage site. It is a subtle reaction that helps bring coherence to the Museum within its context (www.oma.eu).
This simple but subtle respect of the heritage building and surrounding context is what served to inform the approach to the adjacent heritage site with the proposed block intervention

Seattle National Library

Architect: Rem Koolhas
Location: Seattle, USA
Date: Completed 2004

Fig.5.5 www.oma.eu

Fig. 5.6 www.oma.eu

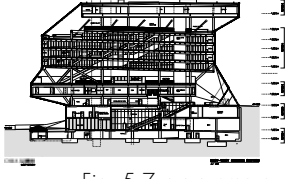


Fig. 5.7 www.oma.eu

The Seattle National Library creates a Civic Space for the circulation of knowledge. The library has various programmes which flow across various platforms and "in between Planes". This is what gives the Library its form and logic which is both robust and elegant. (www.oma.eu)
The variance of spatial scales, the play on internal light and the creation of a civic space is what informed the proposed intervention. The Seattle Library encourages the user in through shapes that draw the user in off the street through an inside/outside intermediate threshold. This concept informed part of the entrance to the proposed intervention

CCTV-Televison Culture Centre

Fig. 5.8 www.oma.eu

Fig. 5.9 www.oma.eu

Fig. 5.10 www.oma.eu

Architect: Rem Koolhas
Location: China Beijing
Date: 2002

Against the backdrop of the strong CCTV building, the culture centre has a more informal quality and houses multiple programmes, including conference and exhibition space. Its is encompassed by an elegant wrapping with a facade that appears to be in a frozen state of motion (www.oma.eu)
The wrapping form of the CCTV building serves as an informant to the proposed intervention as well as the dynamic facade that appears to want to bulge out from within the wrapping

Moses Mabhida Station

Fig. 5.11 Architecture SA

Fig. 5.12 Architecture SA

Architect: Arup Interchange Design
Location: Durban South Africa
Date: Completed 2010

The idea behind the station was to integrate the civic identity, with Architectural vision and heavy traffic flows. The building needed to have a strong identity considering its close proximity to the Moses Mabhida Stadium. The concrete forms with a screened gap in front of operable windows gives it a robustness and graceful presence. (Architecture SA, 19-21)
The concrete form together with the screened openings served as an informant to the proposed intervention.

XXXX House

Architect: Yaizu Shizuoka
Location: Japan
Date: 2007

fig. 5.13 (www.noticiasarquitectura.info)

Fig. 5.14 (www.noticiasarquitectura.info)

This building was built as a pottery and exhibition studio on a very small budget. It is built with a very simple system of alternating composite frames. The purpose of this precedent is to highlight the pattern of light and dynamic patterns created by the use of simple alternating forms.(http://www.noticiasarquitectura.info)

Casa Da Musica

Architect: Rem Koolhas
Location: Porto, Portugal
Date: 2007

Fig. 5.15 www.oma.eu

Fig. 5.16 www.oma.eu

Fig. 5.17 www.oma.eu

The Casa da Musica has its ideal"shoe box" auditorium at the centre with a redefinition of the functions and public realms around it. This serves as an informant to the spatial arrangement in the proposed intervention. The Casa Da Musica also has cut outs through the facade to frame specific views to the city which informs a similar approach to the facade of the proposed intervention (www.oma.eu)

Museum of Art Seoul University

Architect: Rem Koolhas
Location: Seoul Korea
Date: 2005

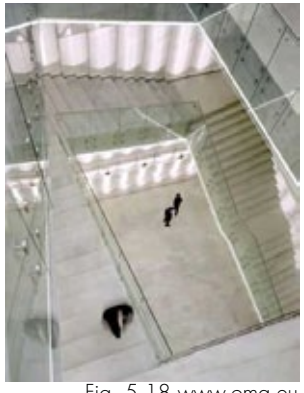


Fig. 5.18 www.oma.eu

Fig. 5.19 www.oma.eu

The Building is a bold form that reacts to the topography. It has large open volumes and various scales as you move through the building. This served to inform the volumetric accentuation of spaces in the proposed intervention. The transparency and internal views afforded by the glass balustrades also creates a simple legibility within the building which informed part of the tectonic approach. (www.oma.eu).

Morgan Library

Architect: Renzo Piano
Location: New York, USA
Date:

Fig. 5.20 (www.arcspace.com)

Fig. 5.21 (www.arcspace.com)

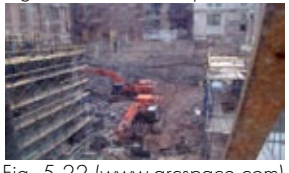


Fig. 5.22 (www.arcspace.com)

The building is a sensitive expansion to the Morgan library precinct. Half of it's floor area, including an auditorium is situated underground so as to respect the scale of the existing older structures. This served as an example of how to fit a large programme into a confined space and remain sensitive to the heritage structures in terms of form and scale. (www.arcspace.com)

Conclusion

The precedents shown all have some influence on the spatial and tectonic decision in the building. The approaches highlighted will be simulated to form a contextually applicable intervention. This means that while the precedents inform the process, the specifics of the site will determine the built form. These precedents therefore be used as informants rather than copied responses.

Fig. 5.23 Showing block massing

Massing Development

The following three design informants were introduced in Chapter 2:

- **Functionality within Government**
  Reshaping the public face and interface
- **Urban Response**
  Creation of spatial Milieu
- **History**
  Emphasizing sense of place

These will be expounded upon and translated into the built form under the following headings:

- Response to Synagogue
- Legibility and Transparency
- Connecting Fabric to Square
- Varying Spatial Scales
- Layering of Spatial Hierarchy
- Response to Hard Urban Fabric
- Dynamic Edge
- Capture views
- Connecting Black Box
- Solid Concrete vs. Agile Wrapping

Response to Synagogue

The Main form is a result of the response to the **Historic Icon**. The Synagogue site is dealt with in more detail by another student. Important though, is that the smaller structures are demolished and remembered at its edge through light steel frames. The form respects the Synagogue as an historic landmark and creates a backdrop upon which a **Sense of Place** and appreciation for the Site can happen. The wrapping, is composite Aluminium and perceptually a light and agile flow from the more intimate restaurant space below, connecting spaces from below ground and rising up over the functions within creating the height needed for the precinct as explained before.

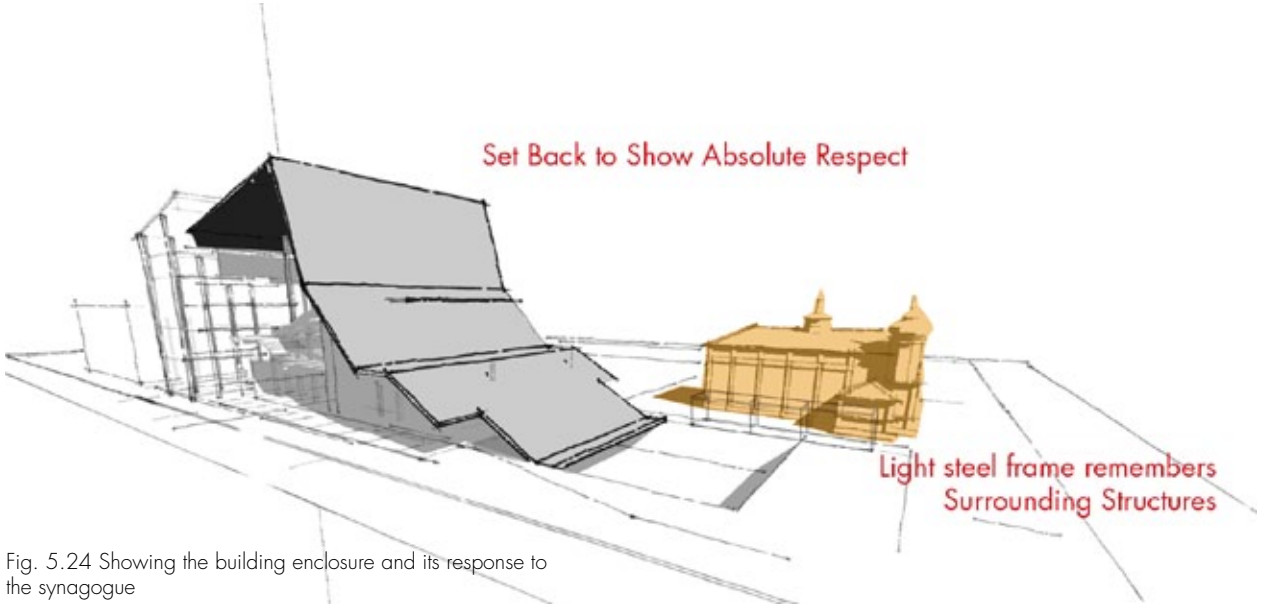


Fig. 5.24 Showing the building enclosure and its response to the synagogue

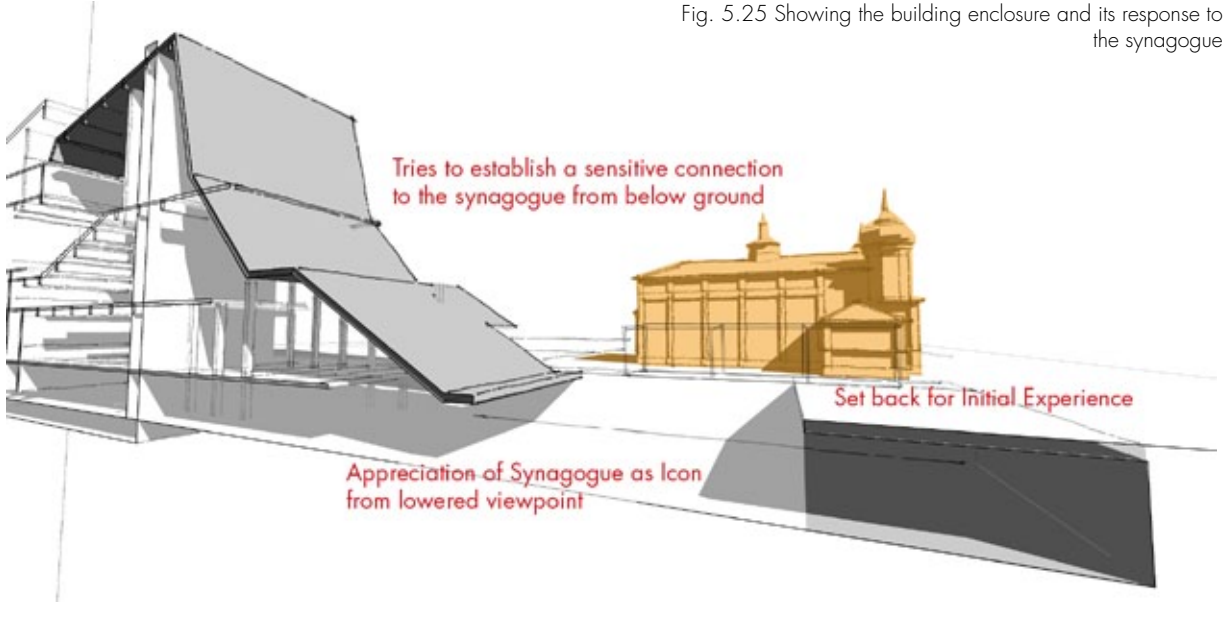


Fig. 5.25 Showing the building enclosure and its response to the synagogue

Legibility and Transparency

Legibility and transparency are achieved via a sequence of **Visual connections** between the street, through the building and onto the square. Glass curtain walls are shaded by louvres spaced at large intervals so as to maintain the transparency of the envelope. This is screened as indicated further on. The concept being that much of the functions in the building are visible from elsewhere in the building and the square as well. This is to **connect the user** with the internal functions even in the case of a closed events albeit only through visual connections.

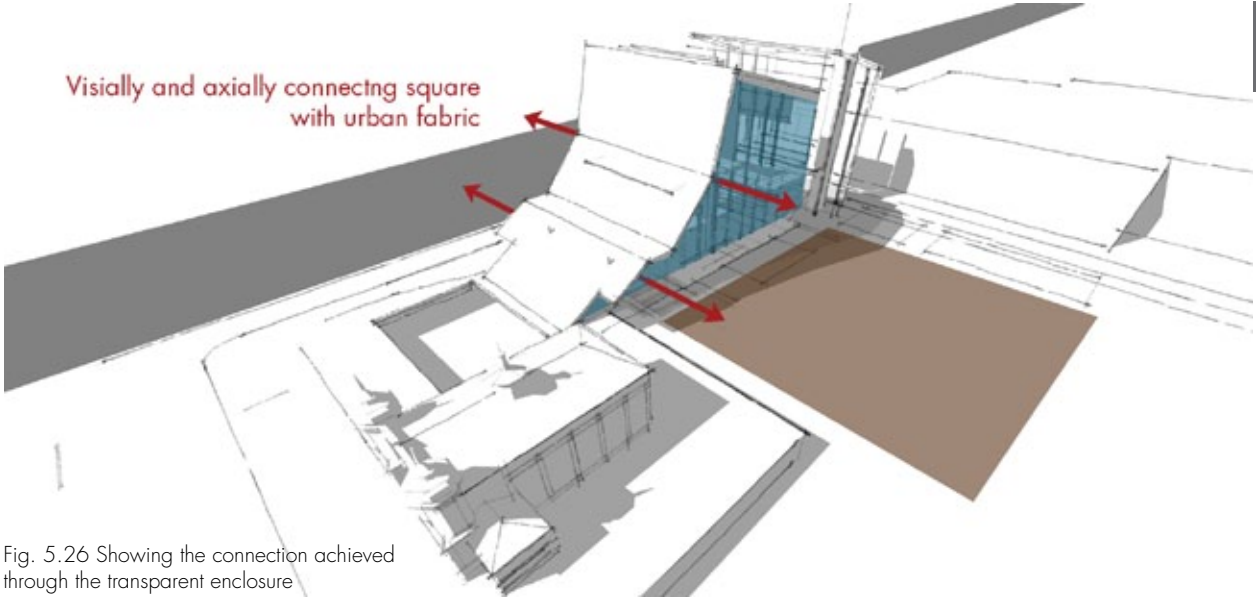


Fig. 5.26 Showing the connection achieved through the transparent enclosure

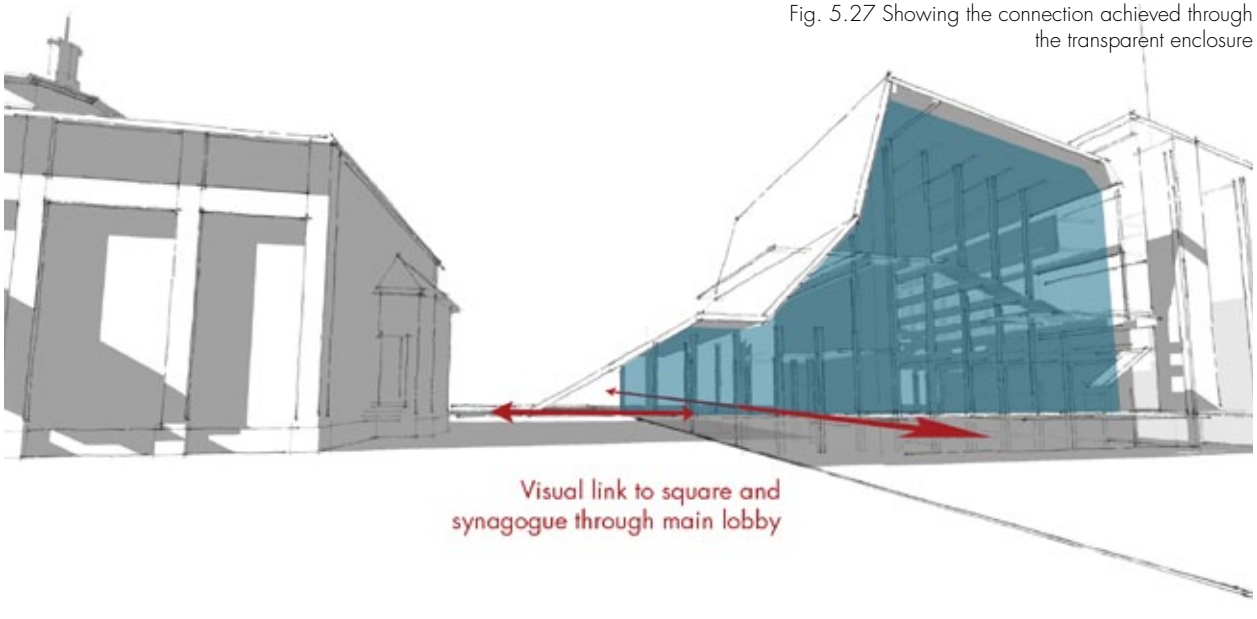


Fig. 5.27 Showing the connection achieved through the transparent enclosure

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Connecting Fabric to Square

It is important that the square doesn't sit in isolation and that the block remains **largely penetrable** for most of the day and night. There are therefore through axis indicated in prominence by the arrows allowing access on ground floor through the building which sits as a **mediation** between the street edge and the square. There are various spatial thresholds that indicate privacy of varying degrees. The ground floor remains accessible, though predominantly public uses such as retail, Restaurant and Exhibition Component.

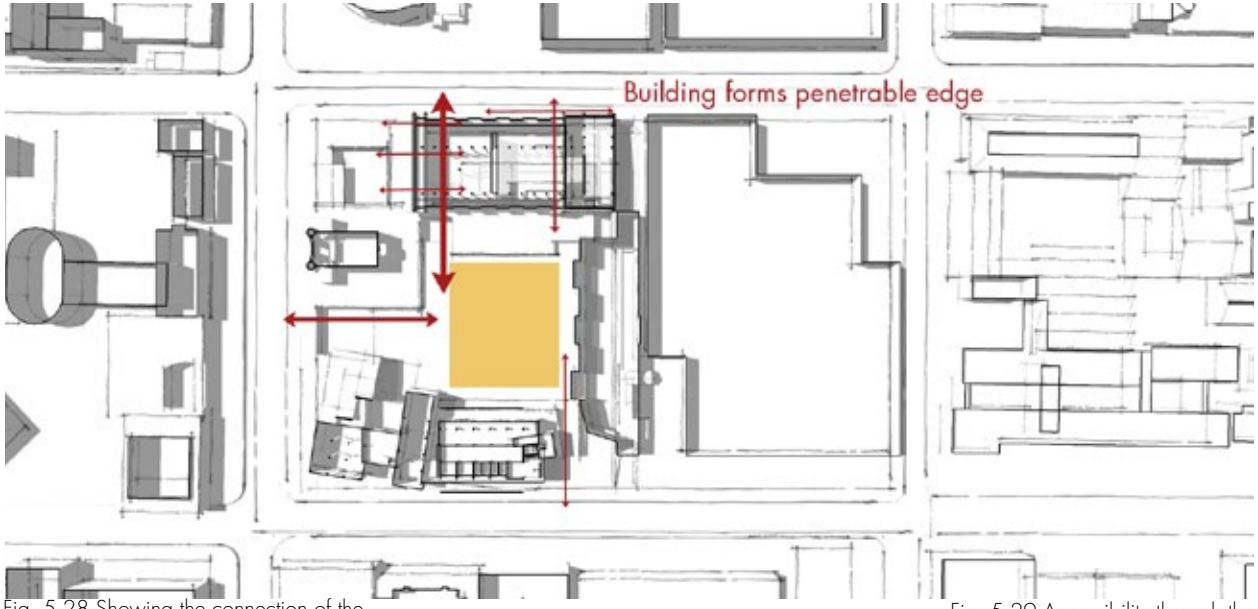


Fig. 5.28 Showing the connection of the square to the fabric through the building

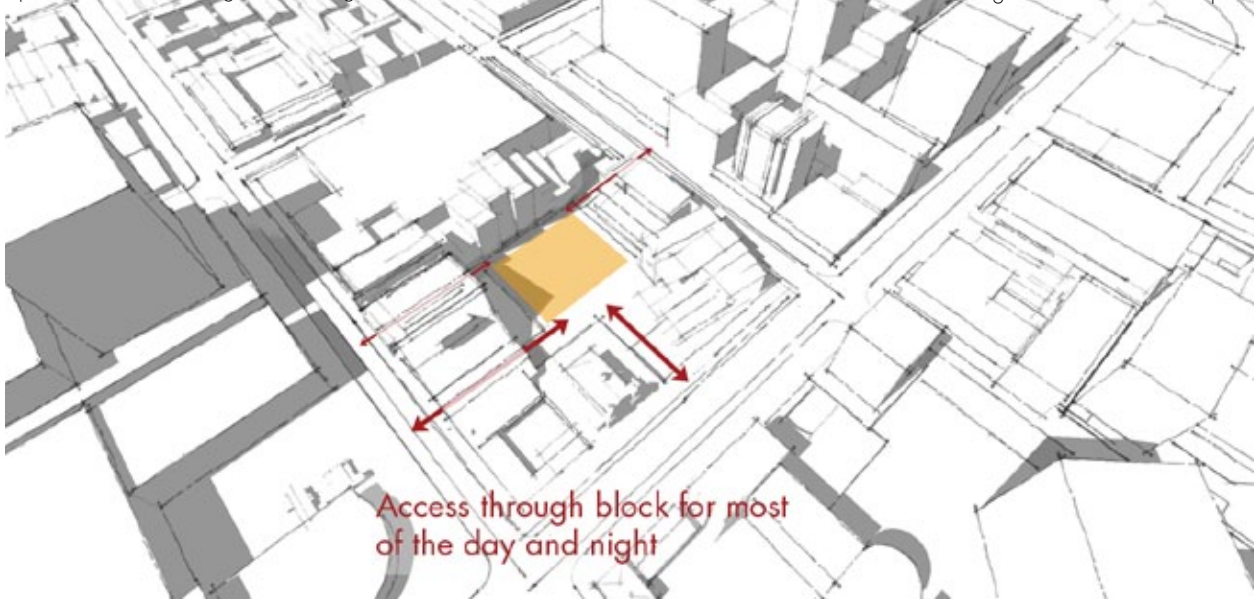


Fig. 5.29 Accessibility through the building from the street to the square

Varying Spatial Scales

The experience of a building is influenced in large part by how the user enters it at first and then encouraged through **avoiding monotony**. Varying spatial scales also indicate a hierarchy of privacy and **threshold changes**. The building therefore attempts to encourage the user in through a large entrance lobby and encourage the user to explore through the variance of scales along the journey throughout the building.

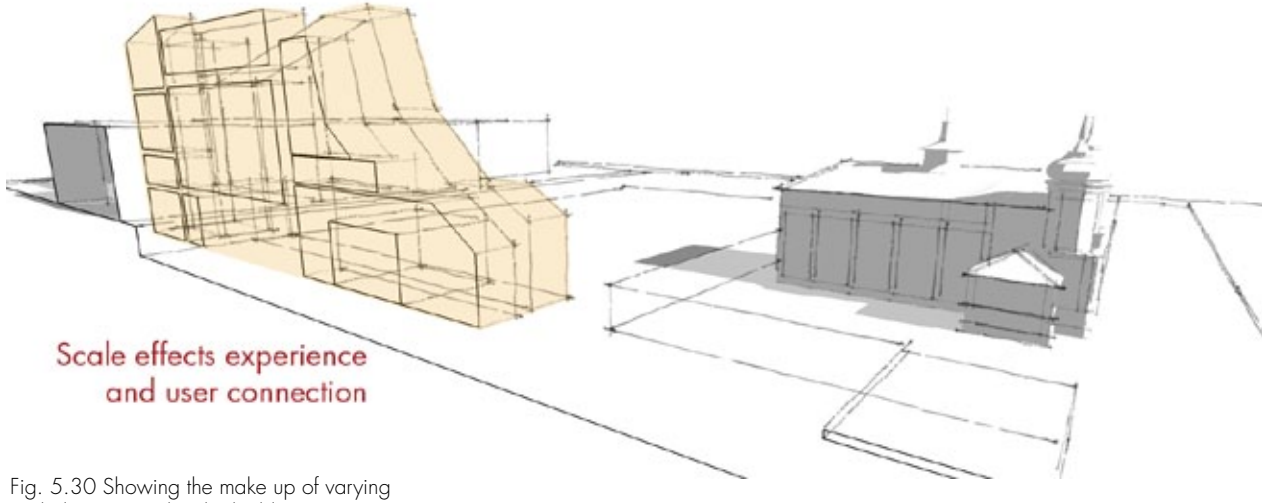


Fig. 5.30 Showing the make up of varying scaled spaces within the building

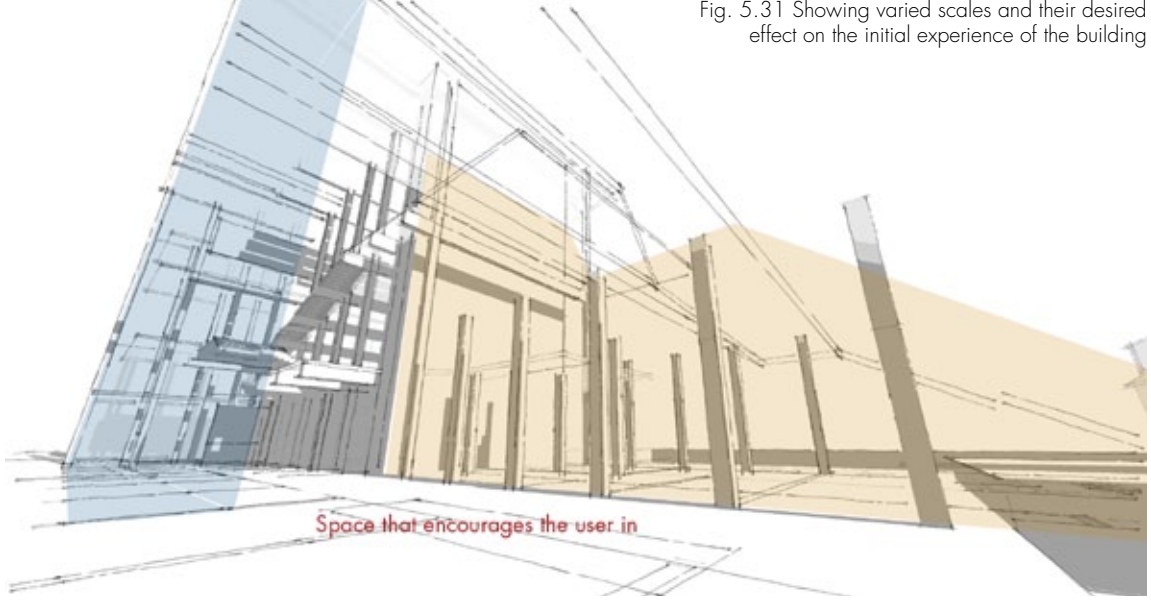


Fig. 5.31 Showing varied scales and their desired effect on the initial experience of the building

Layering of Spatial Hierarchy

Layered throughout the building is a spatial hierarchy which **gradually becomes more private** as you move away from the synagogue side and up through the building. It is intended that the ground floor remains largely public with retail and restaurants being the main accommodation with the meeting venues allocated out of the public realm. As the user moves through the building the spaces become less public with specific **mediation zones** that act as transitions from a more public to a less public or private zones. This becomes very clear as the user is confronted with changes in volume.

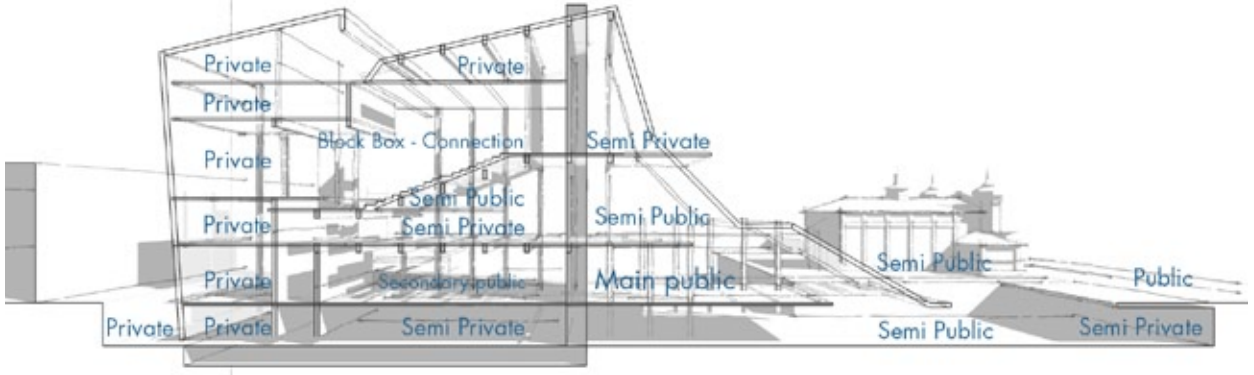
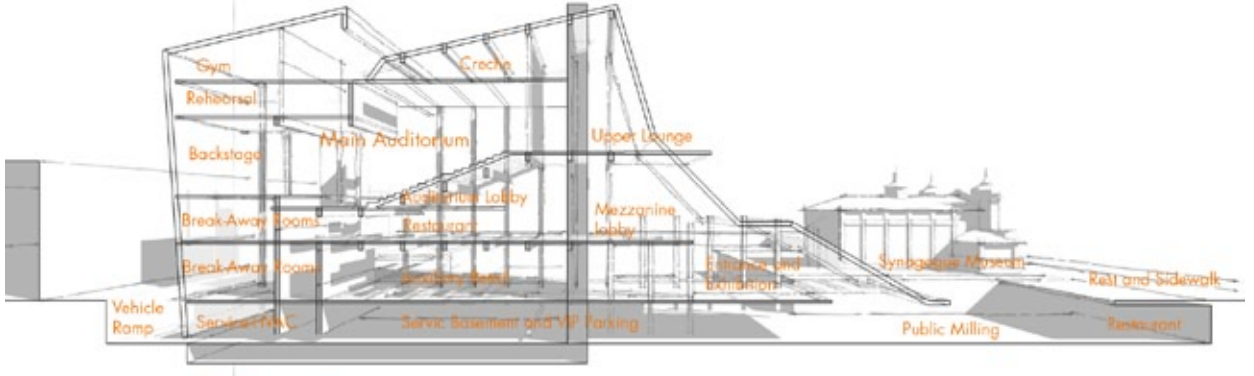


Fig. 5.32 Showing the spatial hierarchy in the building.

Fig. 5.33 Showing the functions related to the hierarchy



Response to Hard Urban Fabric

The eastern edge of the building is wrapped over with a hard off-shutter concrete wall with horizontal penetrations. This is to form a **mediation** between building from the synagogue, connecting it to the more **robust fabric**. The northern and southern edges have a ventilated cavity clad with perforated Corten to give it the appearance of homogeneity whilst still not being solid. The building moves from a dynamic state on the west and gradually becomes **perceptually more solid** toward the east side. The concrete edge steps down to respect the considerably lower adjacent building.

Fig. 5.34 Showing eastern building edge in relation to the adjacent building

Fig. 5.35 Showing the eastern sections response to the urban fabric within context

Dynamic Edge

The louvre frames are designed to look like they are in a **dynamic frozen state**. This is aims at giving a literal interpretation of the buzzing activity of meetings and performances happening inside. They are off set from the glazing to form an **intermediate threshold**, before entering the building. Herein there will be opportunity for bicycles to park and the user to feel a scale difference from the harder street edge as an initial welcome into the building. The louvres will allow dappled light through thus giving it a less harsh quality in contrast to the street as well.

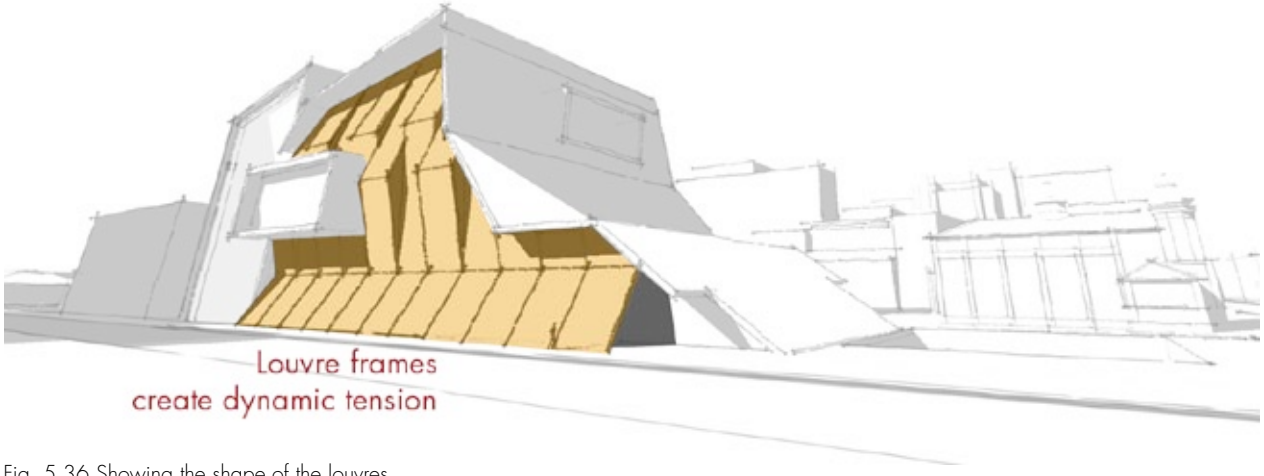


Fig. 5.36 Showing the shape of the louvres frames in relation to the street context

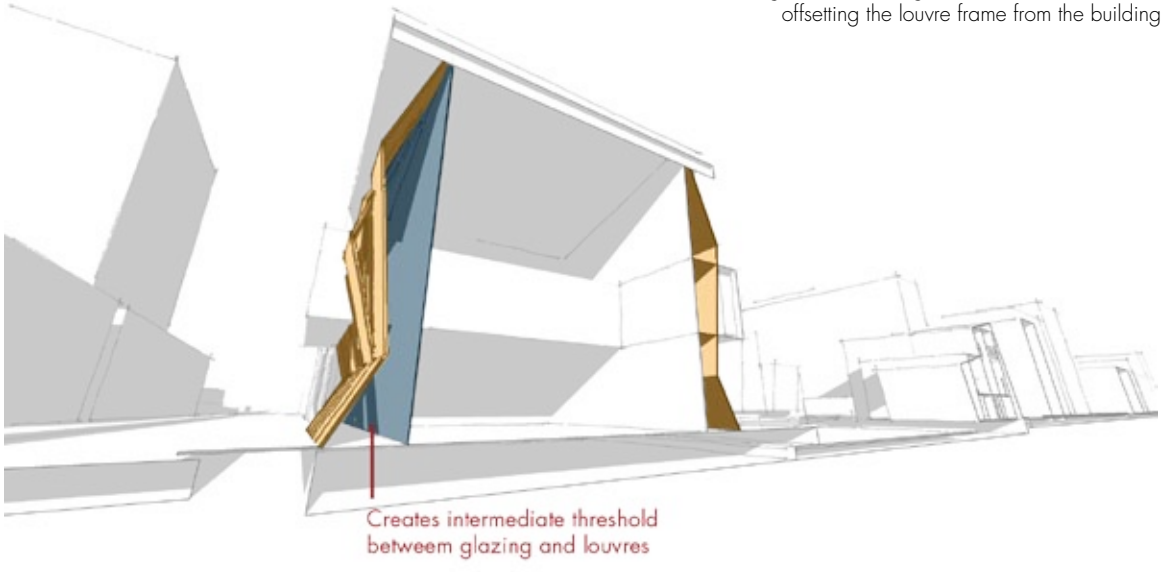


Fig. 5.37 Showing the intermediate threshold created by offsetting the louvre frame from the building enclosure.

Capture Views

The concept of legibility is highlighted here through the connection of the internal users with the outside through the capturing of views. This creates a mediation with and **connection to the urban fabric** and the users not within the building. **Surveillance and defense** of both the street edge and square is afforded through these "boxes". Views toward the Synagogue as a connection to the **history of government** are also made possible.

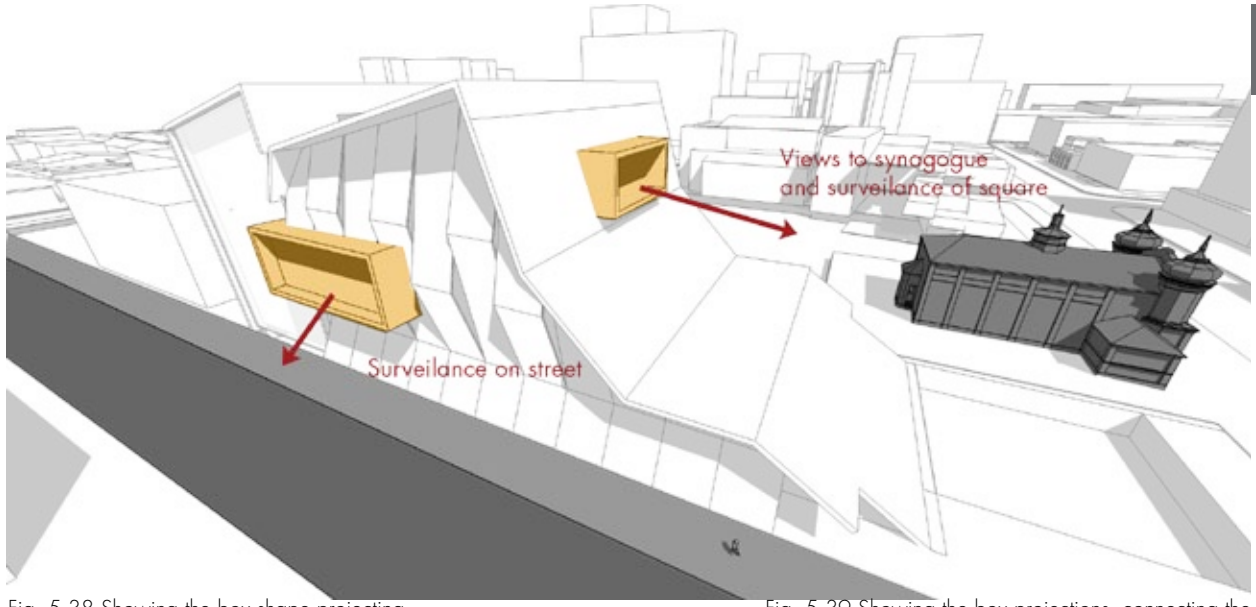


Fig. 5.38 Showing the box shape projecting through the facade to give specific views.

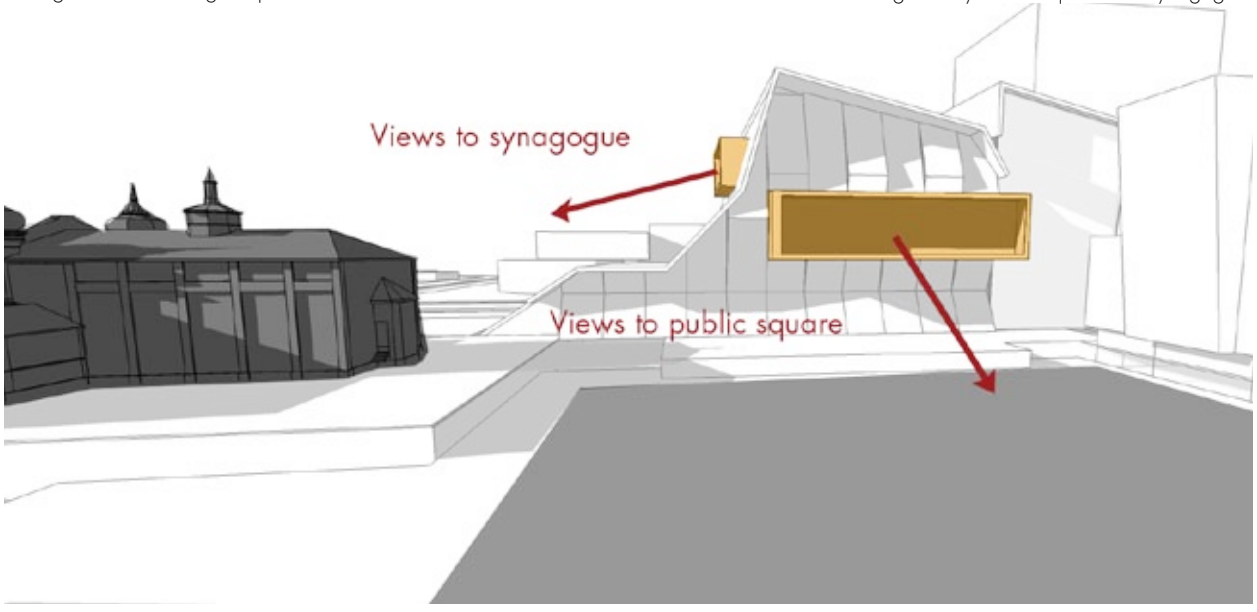


Fig. 5.39 Showing the box projections connecting the building visually to the square and synagogue.

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Connecting Black Box

The main auditorium forms a **conceptual link** between the **two building entities**. The form of the auditorium becomes a volume definer within the building with the lobby spaces on either side **projecting through** the facade, making this connection between the dynamic and static forms of the building. This conceptual link also serves to connect the various realms and give the user a sense of connection albeit only on a visual level.

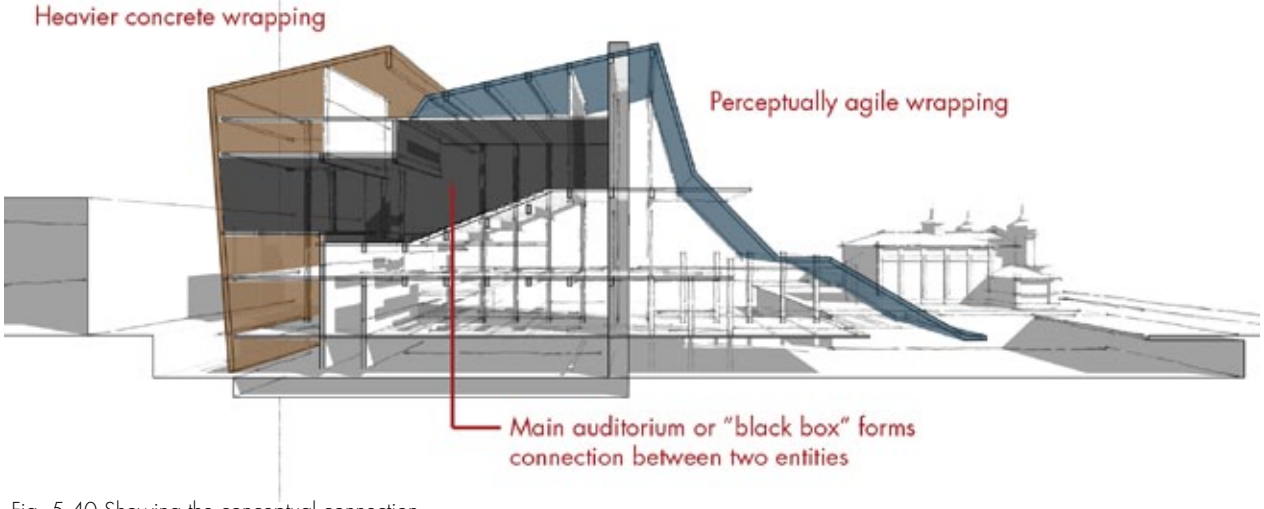
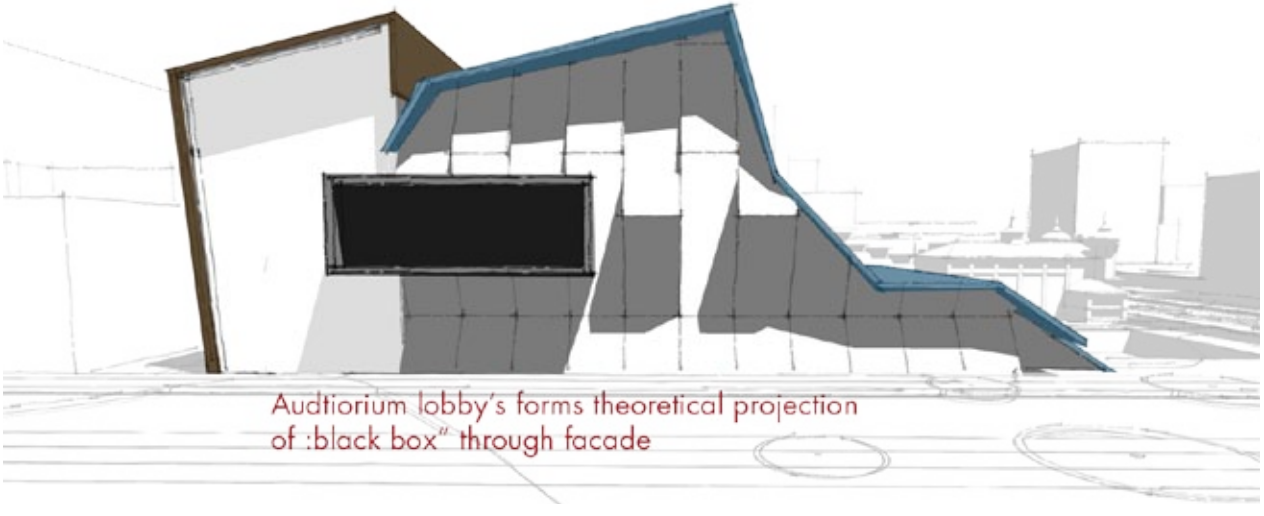


Fig. 5.40 Showing the conceptual connection between the building forms on section

Fig. 5.41 Showing the conceptual connection between the building forms on elevation



Solid Concrete vs. Agile Wrapping

The Solid and **heavy** concrete frame is **juxtaposed** with the **lightness** and agility of the wrapping. The wrapping itself also becomes heavier, starting with a composite aluminium wrapping to the west and becoming off shutter concrete to the East. This although, a physically heavier material has a partial appearance of lightness due to its agile form. The expression of this **dialogue** forms various **solid, void** connections allowing for simple legibility of the built forms and spaces.

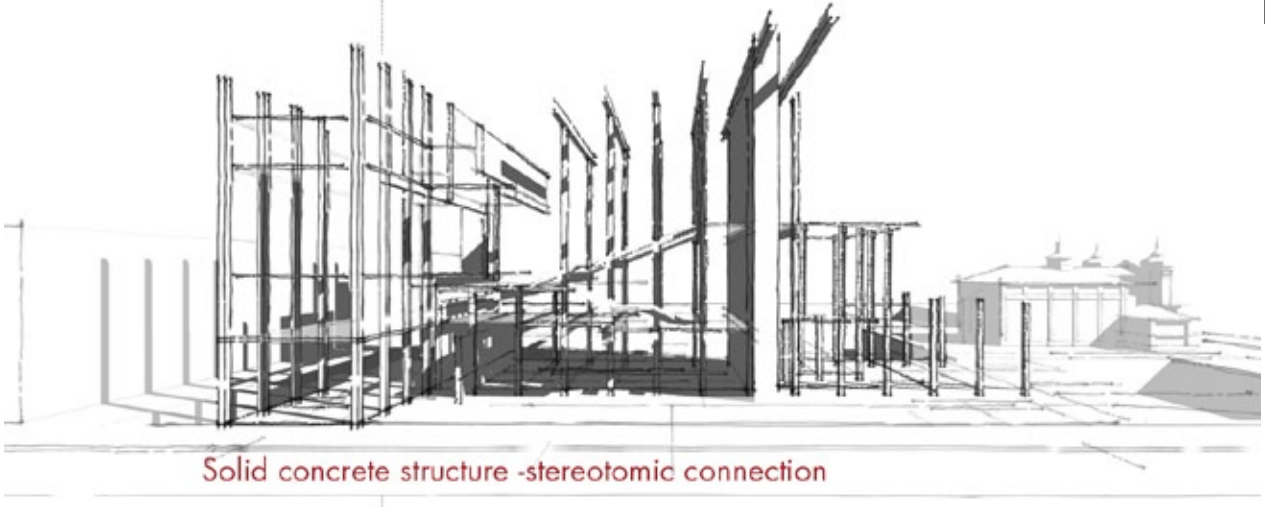
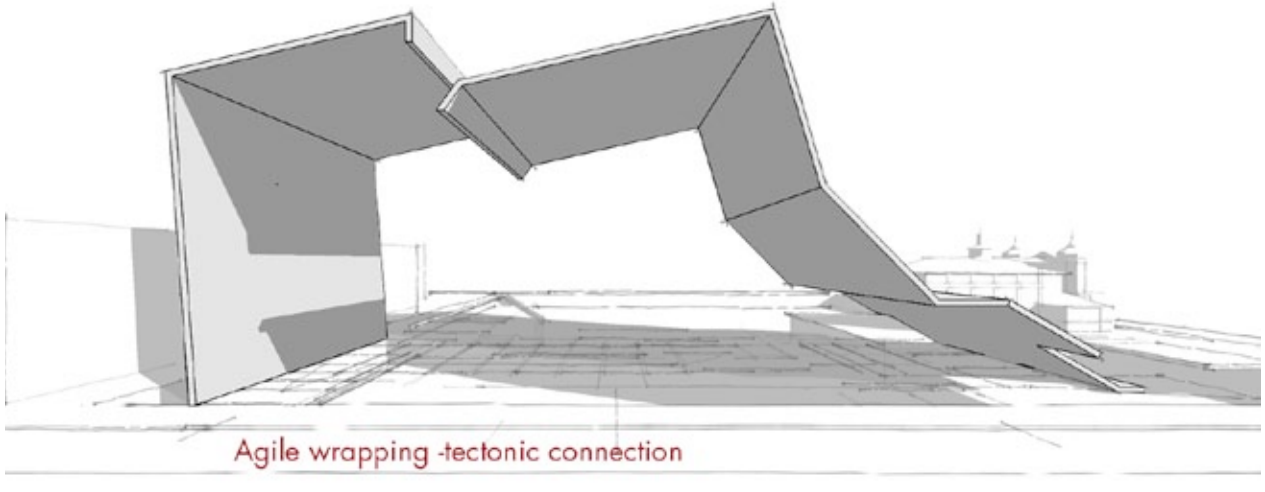


Fig. 5.42 Showing the solid concrete structure.

Fig. 5.43 Showing the wrapping structures.



Conclusion

The intervention has addressed the three design informants with the spatial implications as follows:

- **Functionality within Government**
  Reshaping the public face and interface.

The spatial flow has been prioritized and legibility within the building emphasized in order to increase user ease and encourage the continued visitation of the building

- **Urban Response**
  Creation of spatial Milieu

The buildings response to the street edge as well as the public square encourages a connection between them whilst clarifying for the user, spatial hierarchy and various zones.

- **History**
  Emphasizing sense of place

The building has endeavoured to fulfil the need for urban densification whilst respecting the existing historical fabric through considering and responding to the heritage precinct and adjacent heritage site.

These informants have aided the massing development and volumetric implications with the result being that the intervention has responded to its context in a manner that should help to maintain the urban spatial milieu

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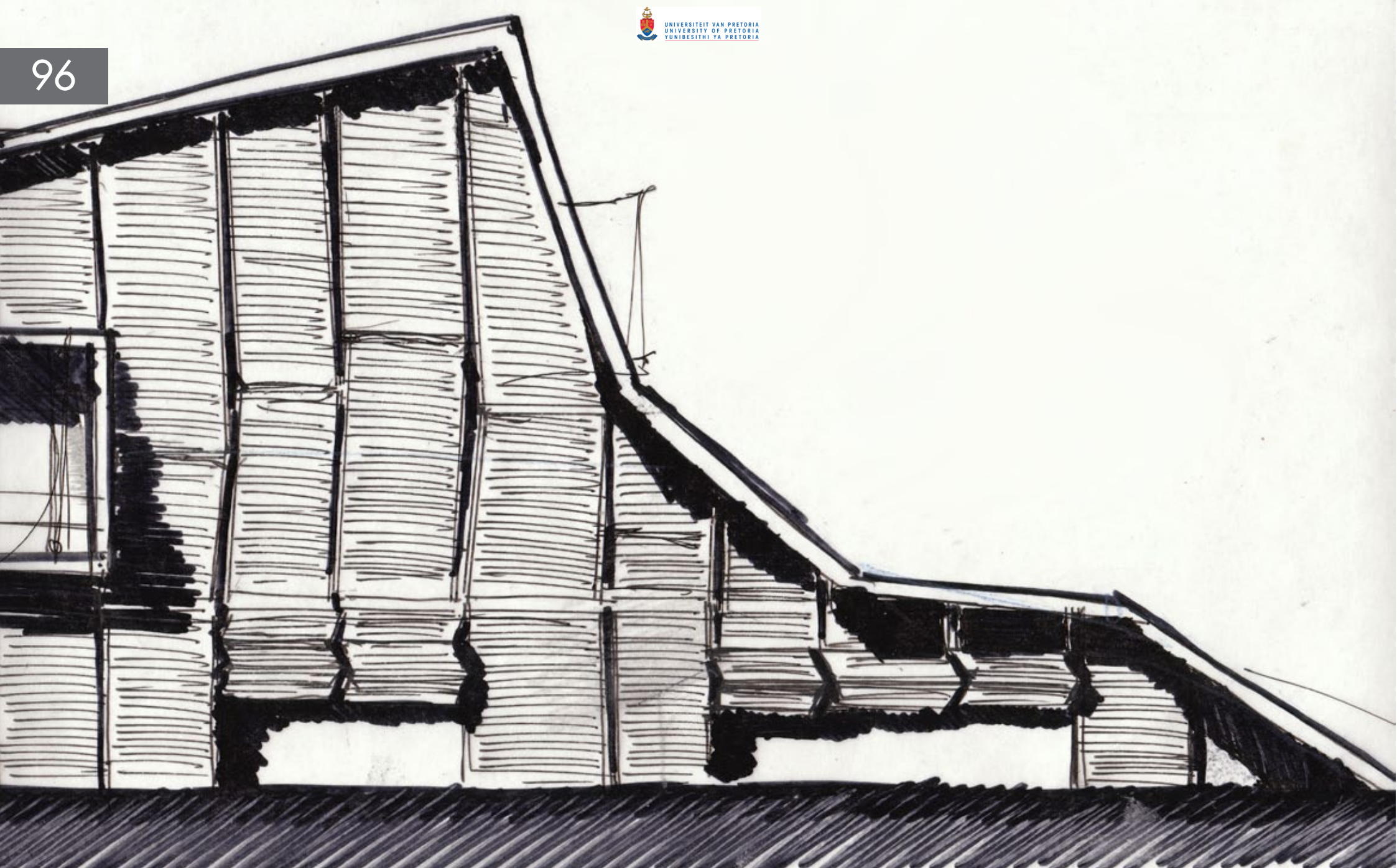


Fig. 6.1 Showing conceptual elevation of the intervention

DESIGN DRAWINGS 06

Fig. 6.3 (Image on next page) Aerial Image showing intervention in context

Nolli Block Plan

Showing extent of publicly accessible space

Fig. 6.4 Perspective showing restaurant and rest space below natural ground

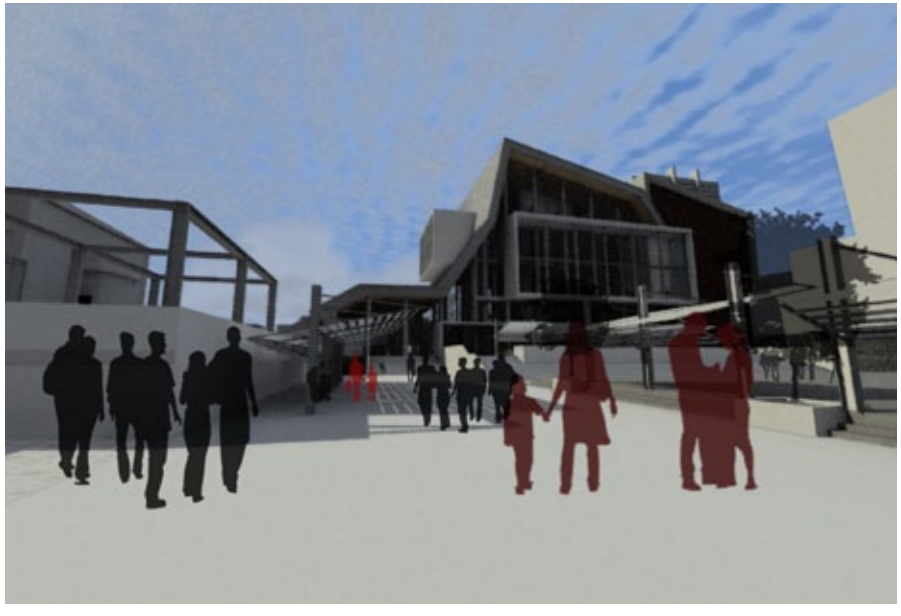
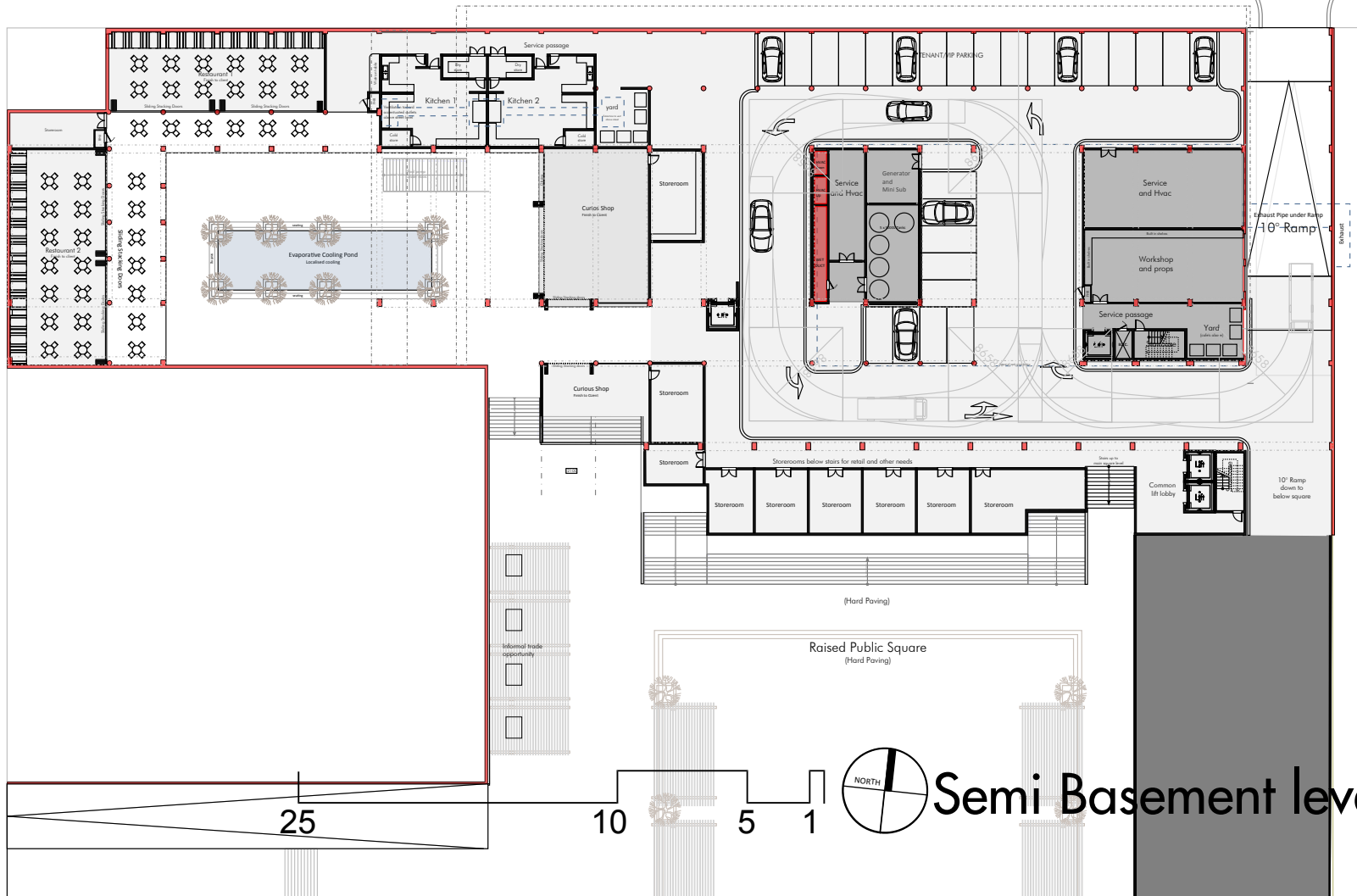


Fig. 6.5 Perspective showing public square and shaded areas adjacent to Synagogue

STRUBEN STREET

PAUL KRUGER STREET



Semi Basement level

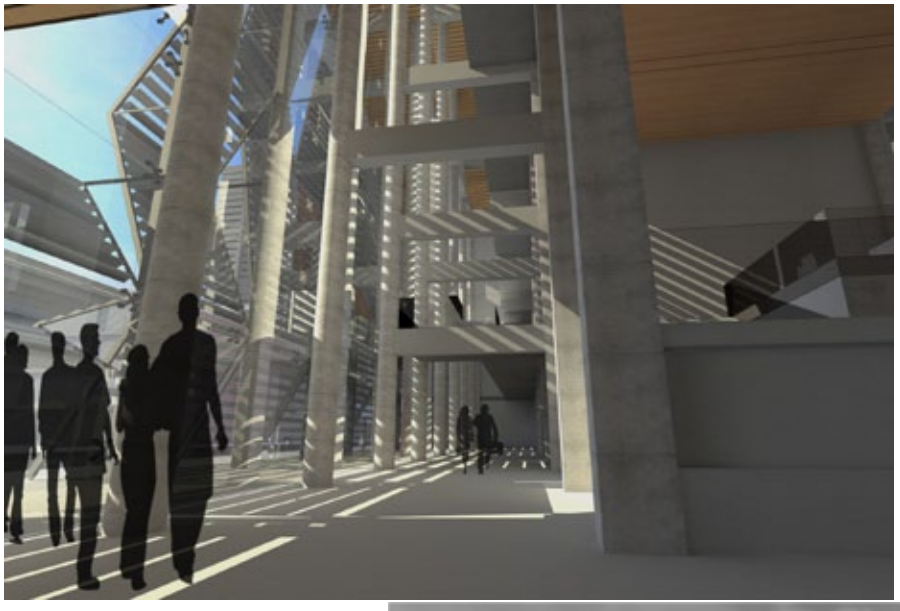
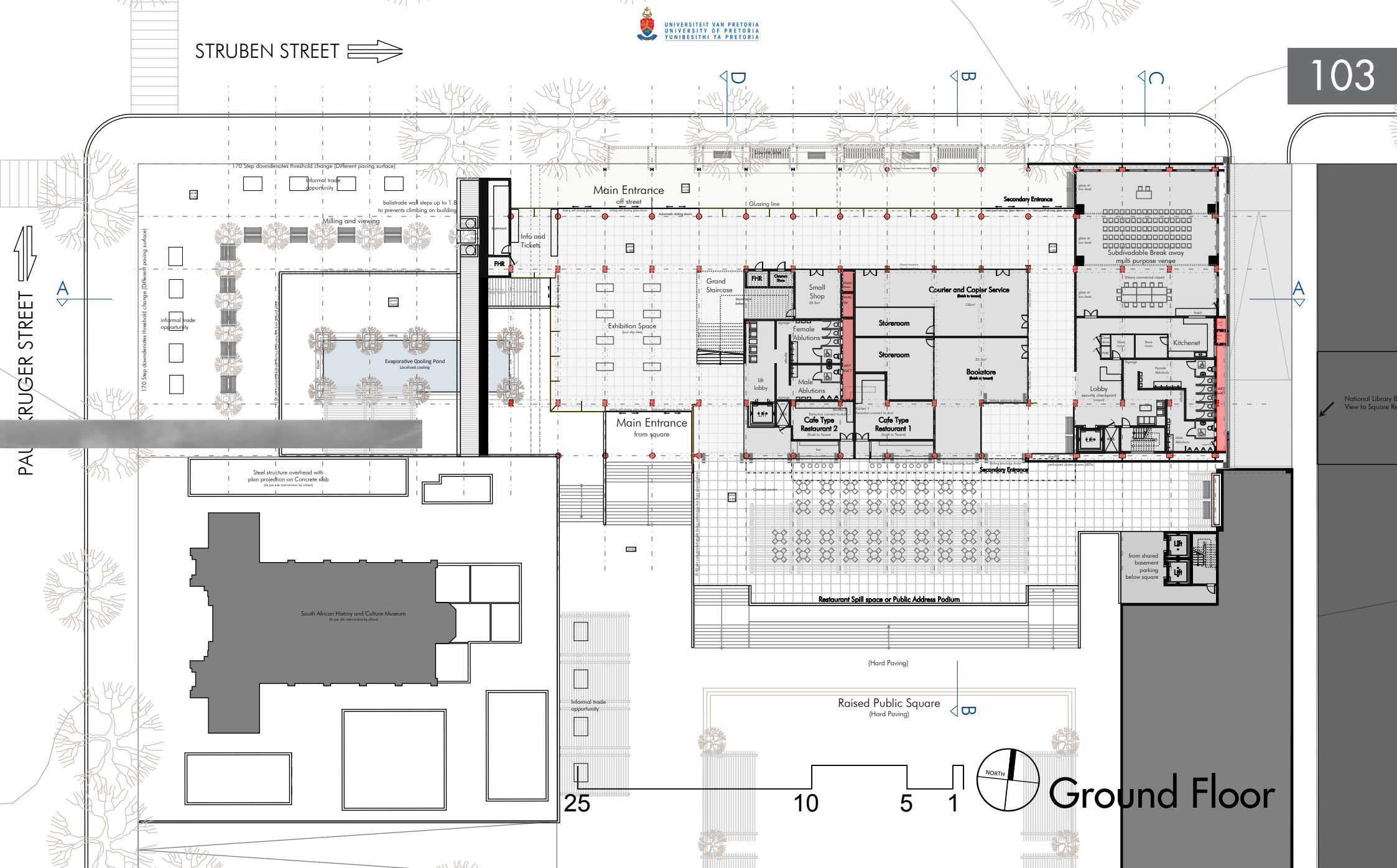


Fig. 6.7 Perspective showing retail arcade and glass curtain wall shaded by external louvres

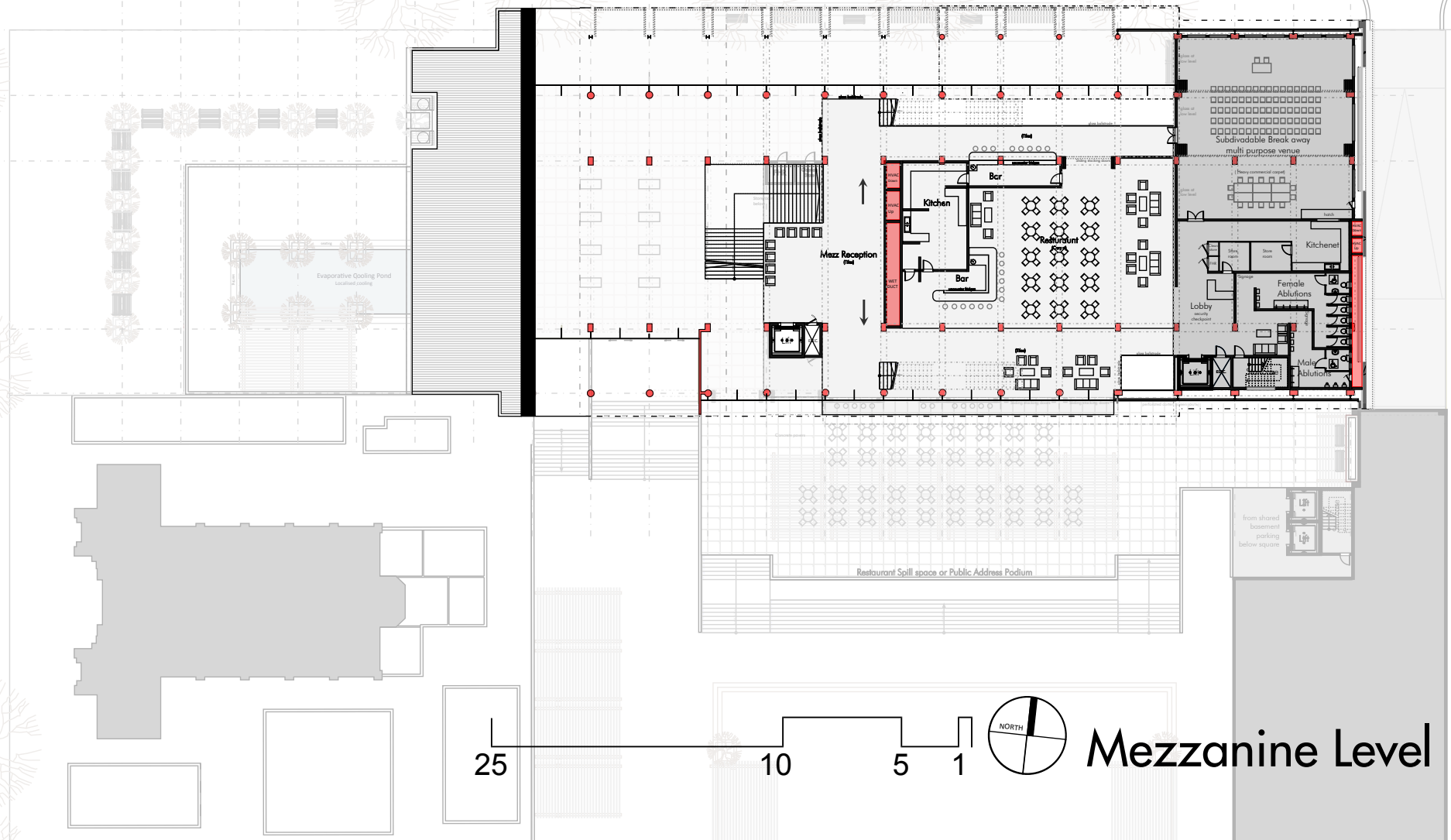
Fig. 6.8 Perspective showing main entrance lobby and exhibition space as mediation between street and square on ground floor



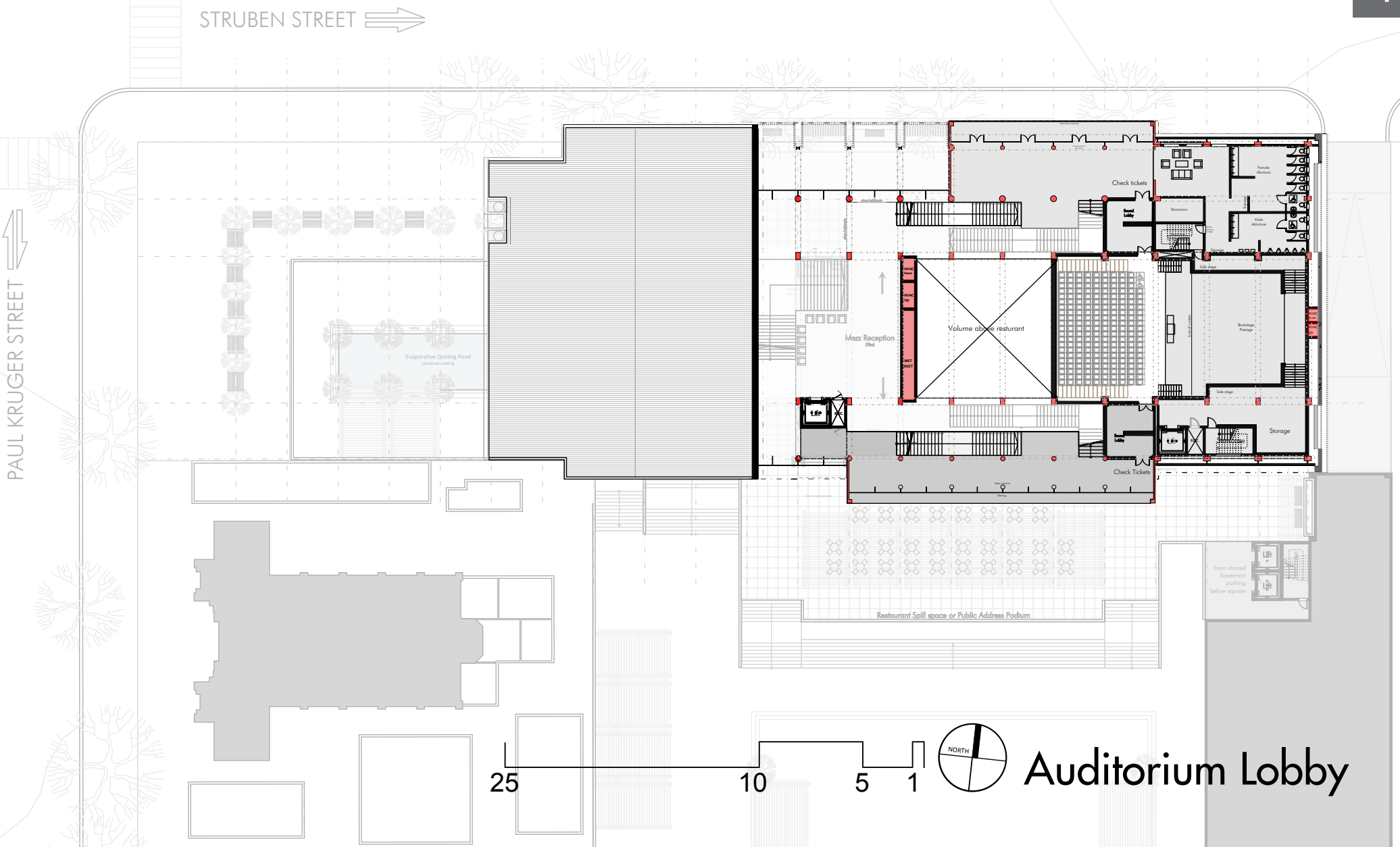
Ground Floor

STRUBEN STREET

PAUL KRUGER STREET



Mezzanine Level



Auditorium Lobby

Fig. 6.12 Perspective showing auditorium lobby space

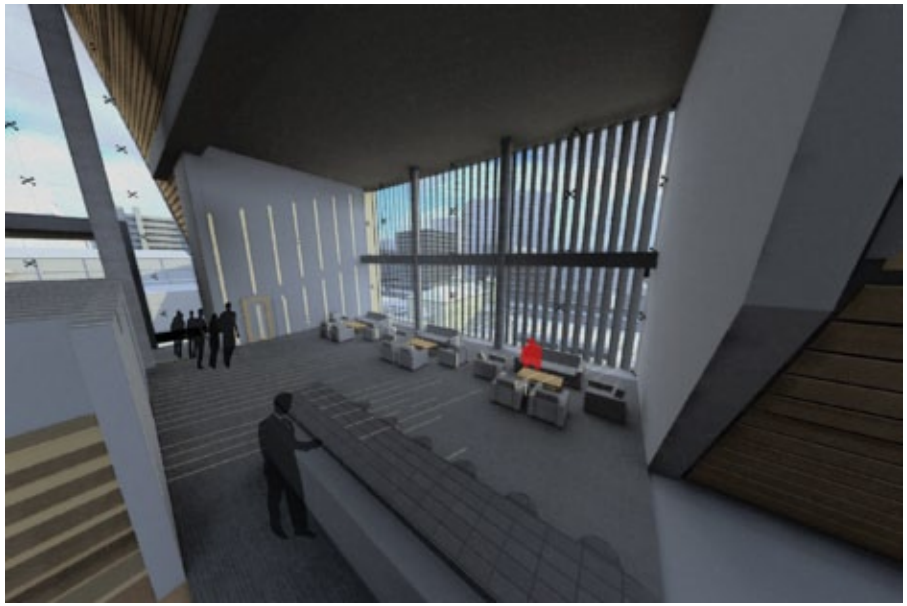
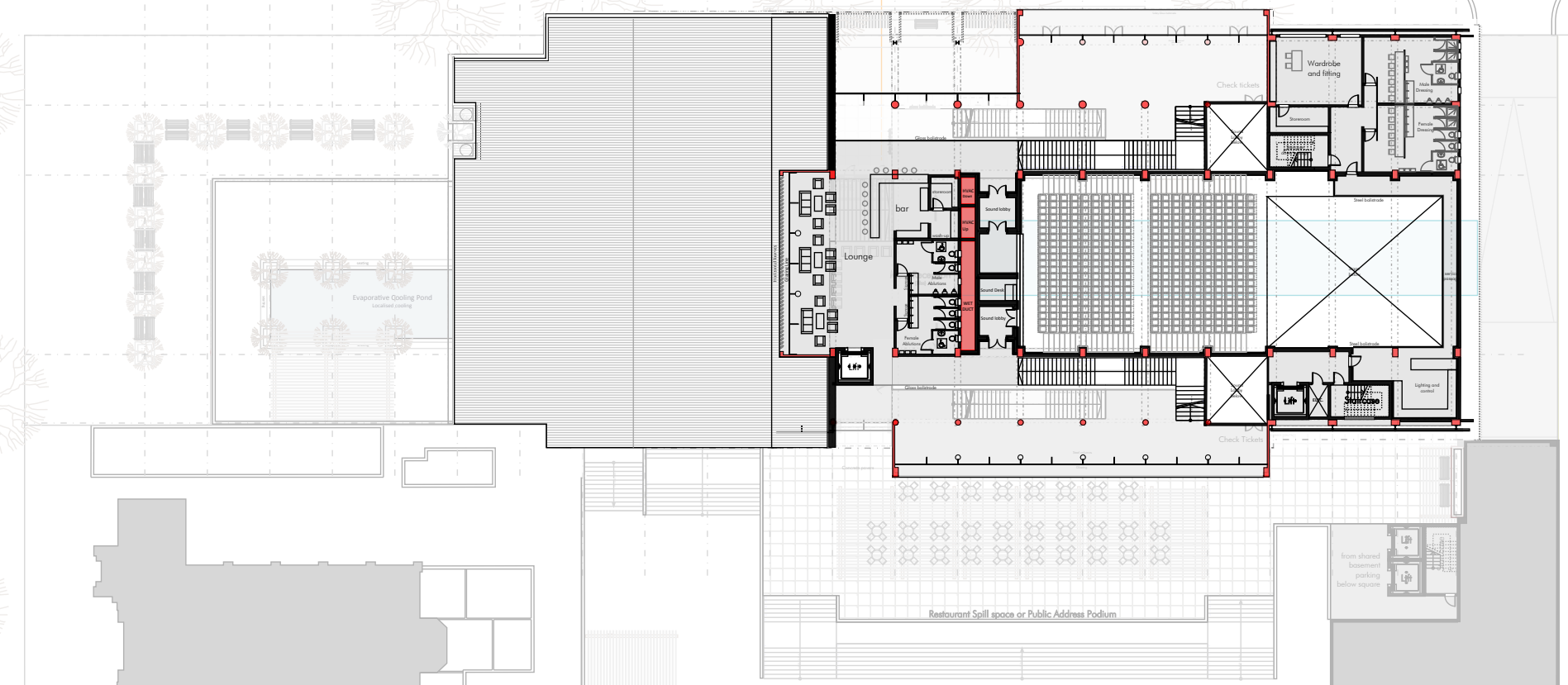


Fig. 6.13 Perspective showing view from upper lounge to the synagogue

STRUBEN STREET

PAUL KRUGER STREET



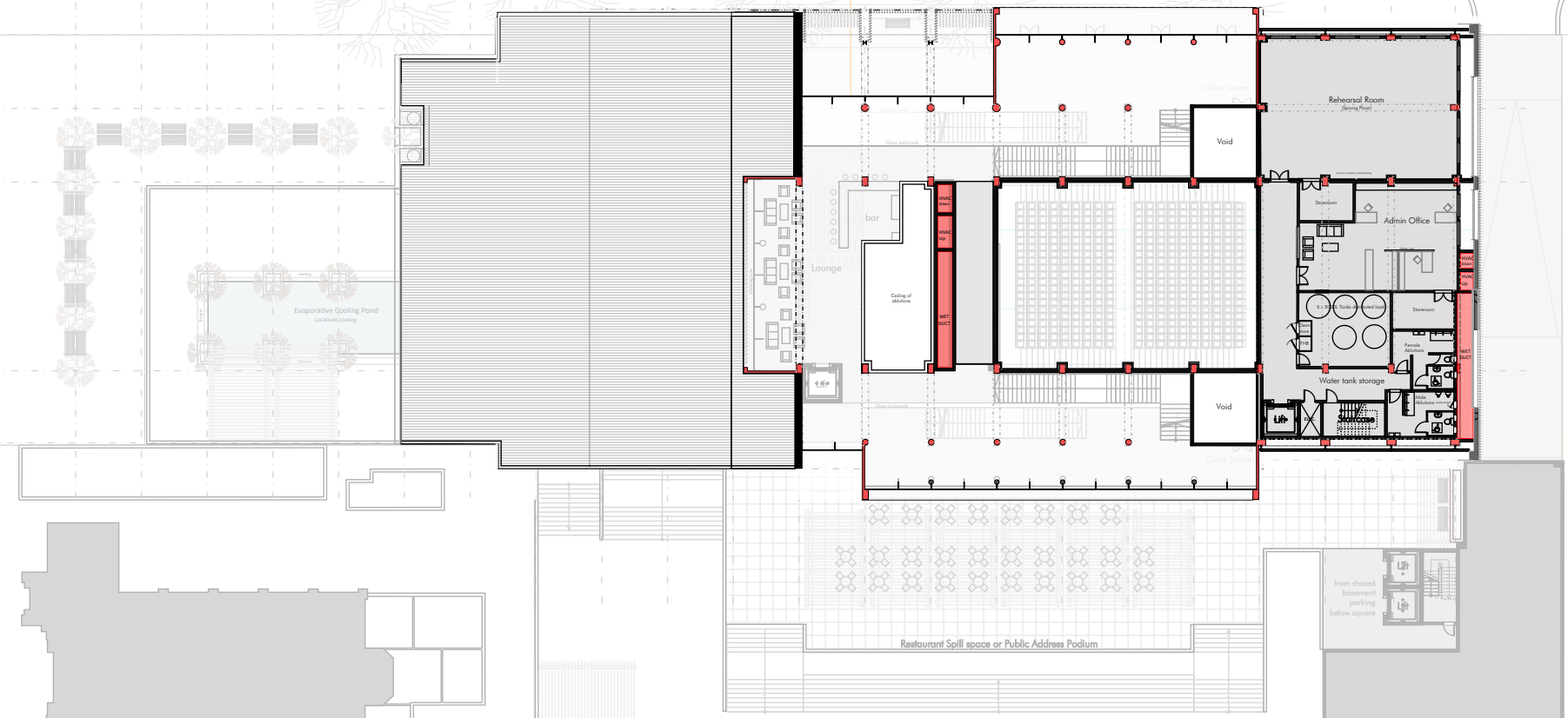
25 10 5 1

NORTH

Upper Lounge and Dressing

STRUBEN STREET

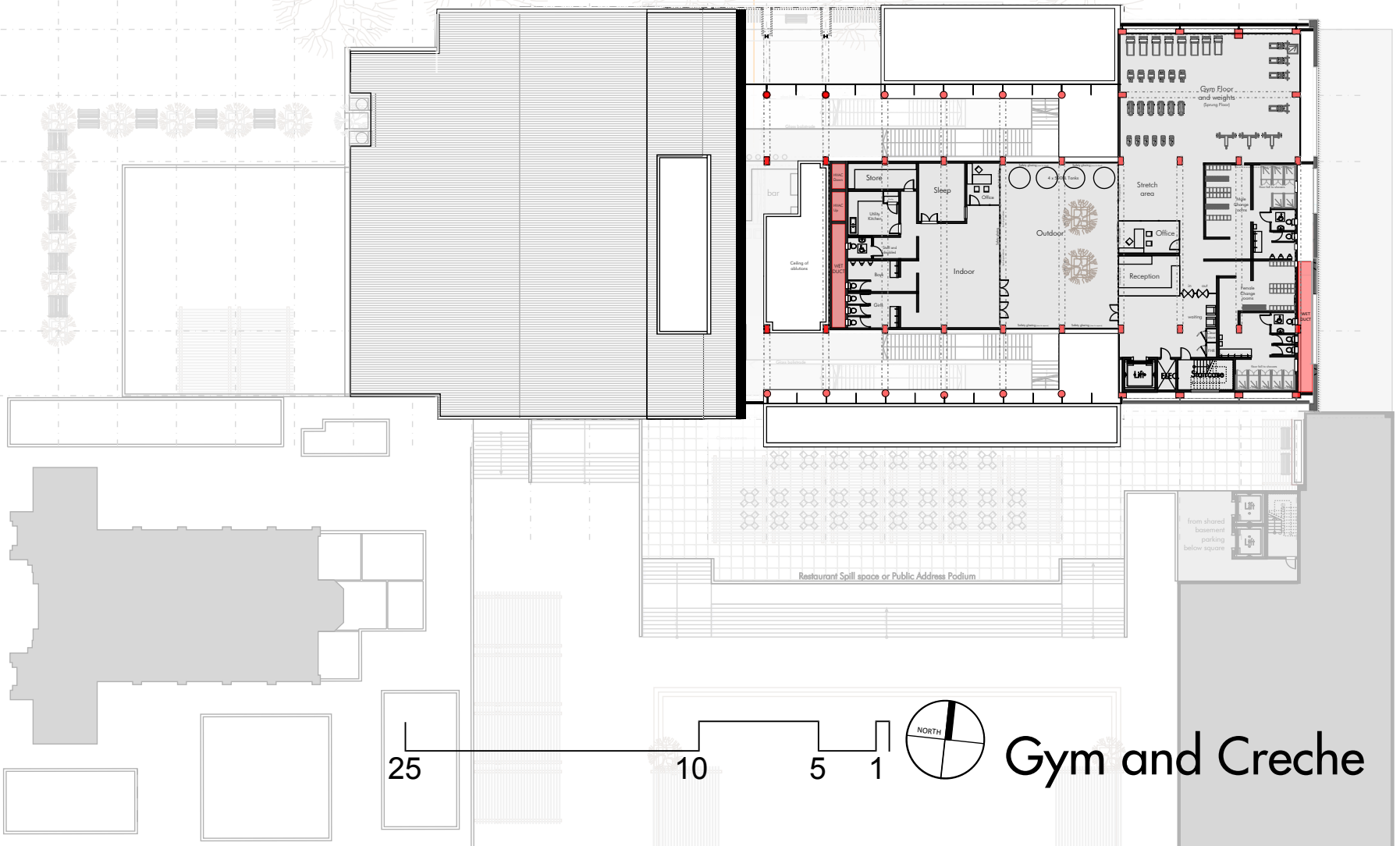
PAUL KRUGER STREET



25 10 5 1

NORTH

Office and Rehearsal



Gym and Creche

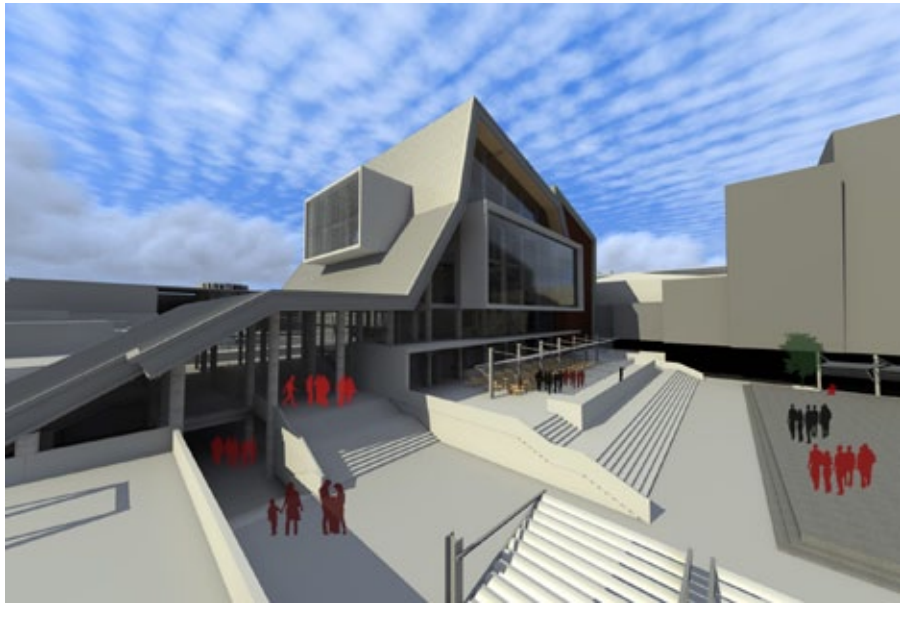


Fig. 6.17 Perspective showing restaurant spill out space and public address podium with the building connection to the square

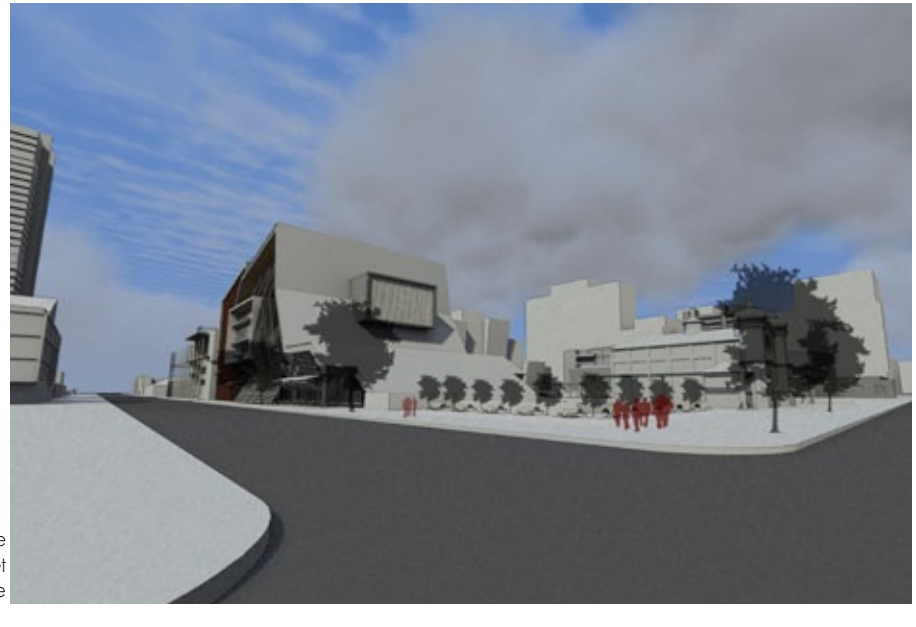
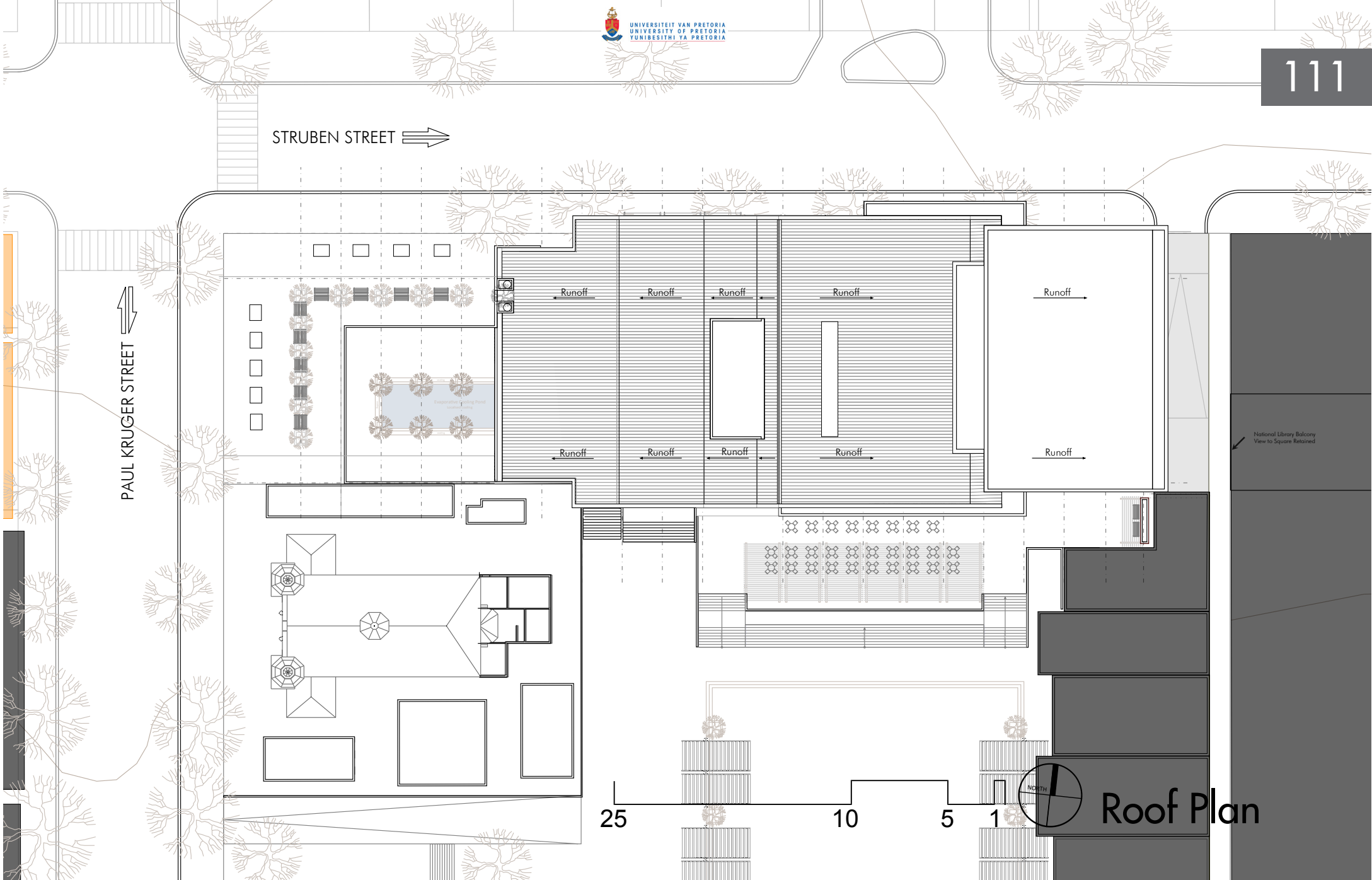
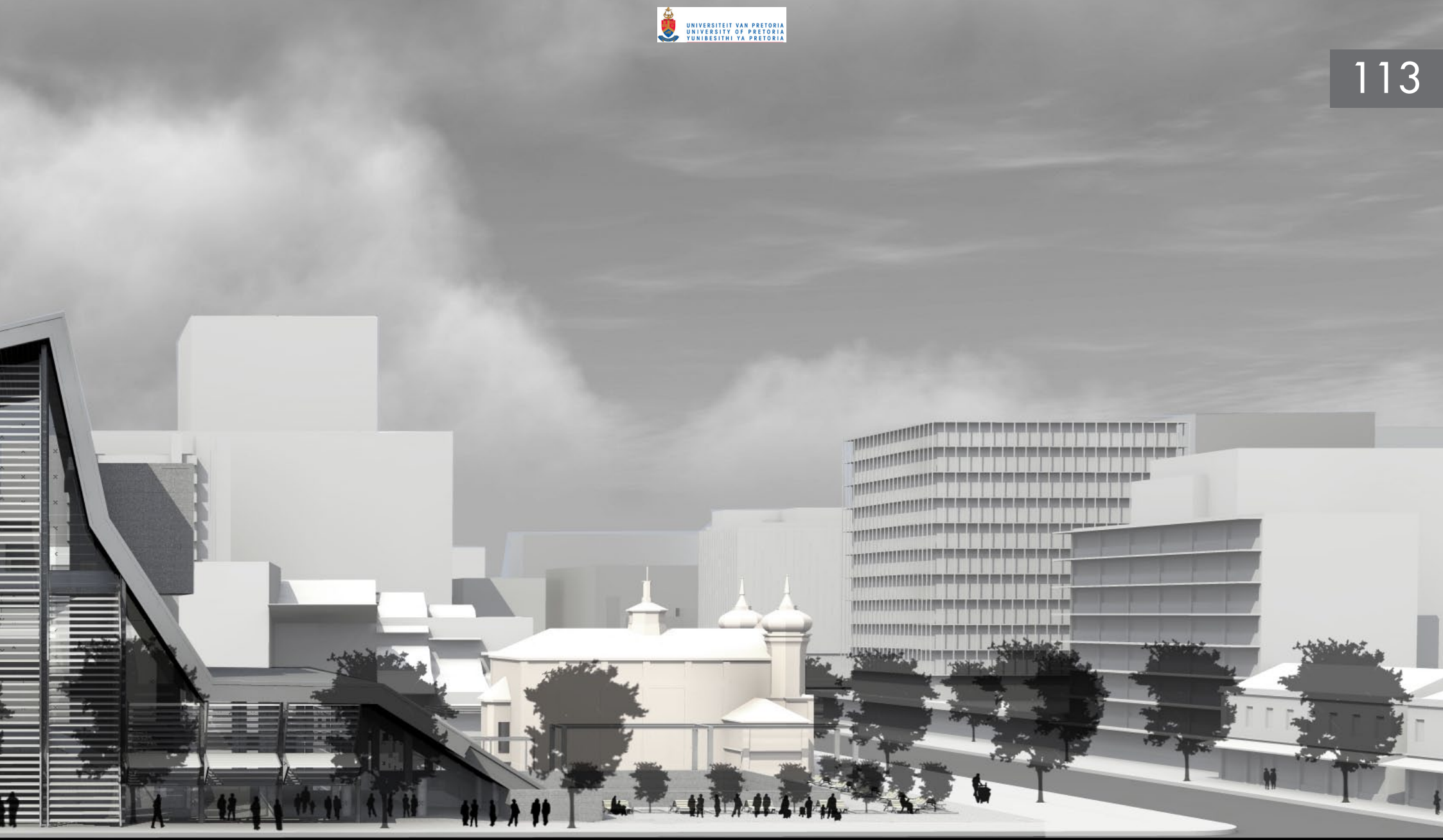


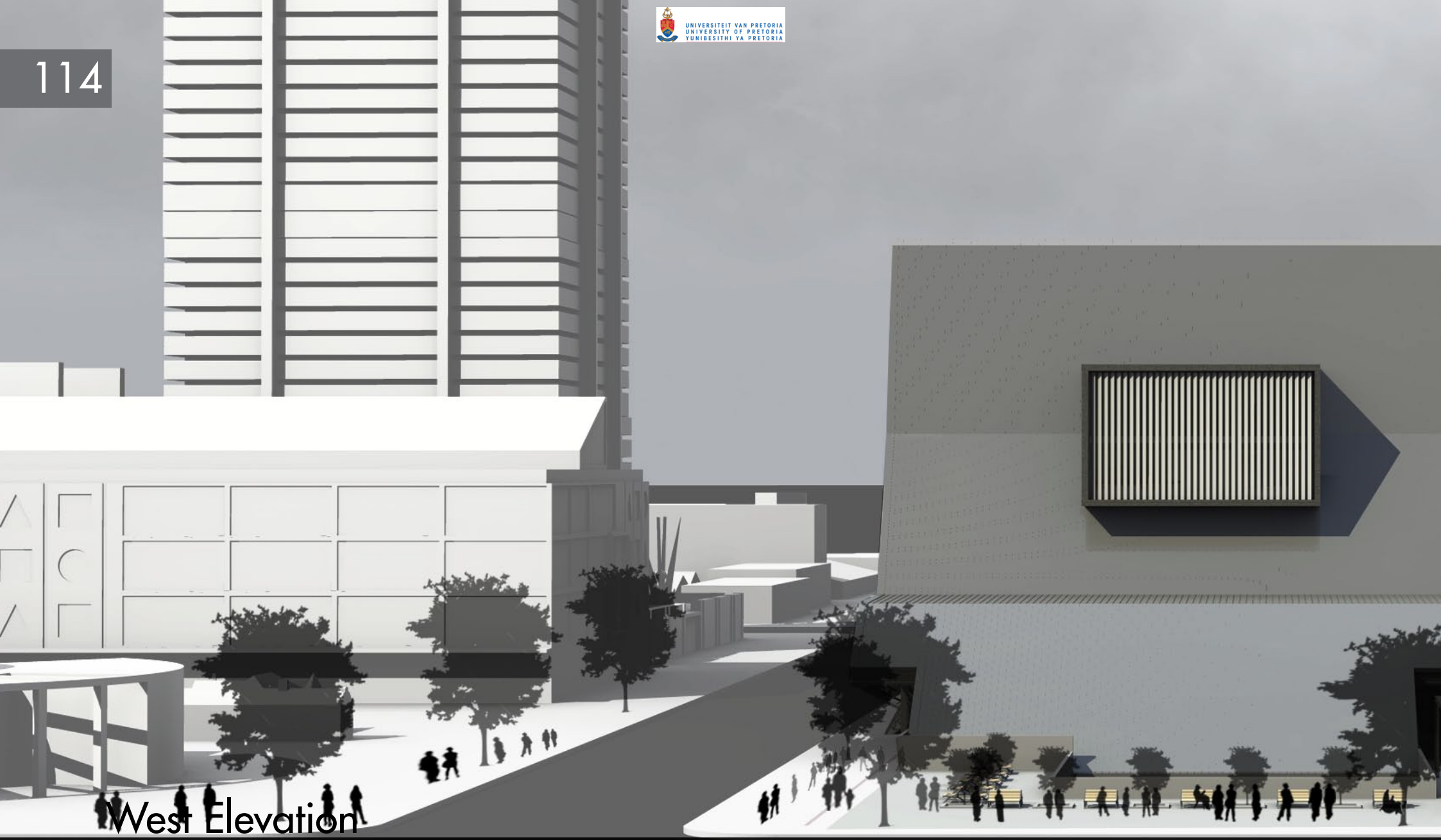
Fig. 6.18 Perspective showing the initial view from Paul Kruger street North west of the site


STRUBEN STREET
PAUL KRUGER STREET
Runoff
Runoff
Runoff
Runoff
Runoff
Runoff
Runoff
Runoff
Runoff
Runoff
National Library Balcony
View to Square Retained
25
10
5
1
NORTH

Roof Plan

North Elevation





West Elevation

3d Sections

Showing spatial arrangement

Fig. 6.22 Perspective Section showing spatial and Volumetric arrangement

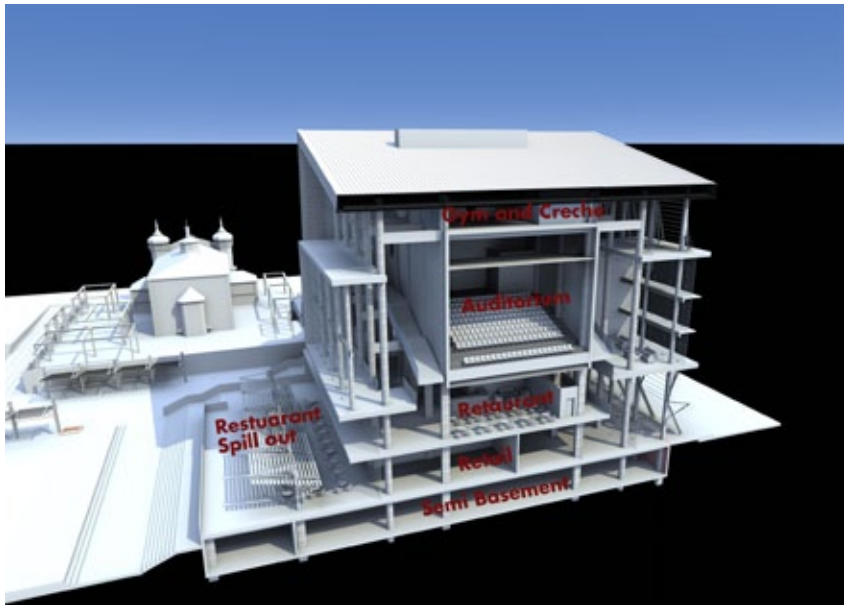


Fig. 6.23 Perspective Section showing spatial and Volumetric arrangement

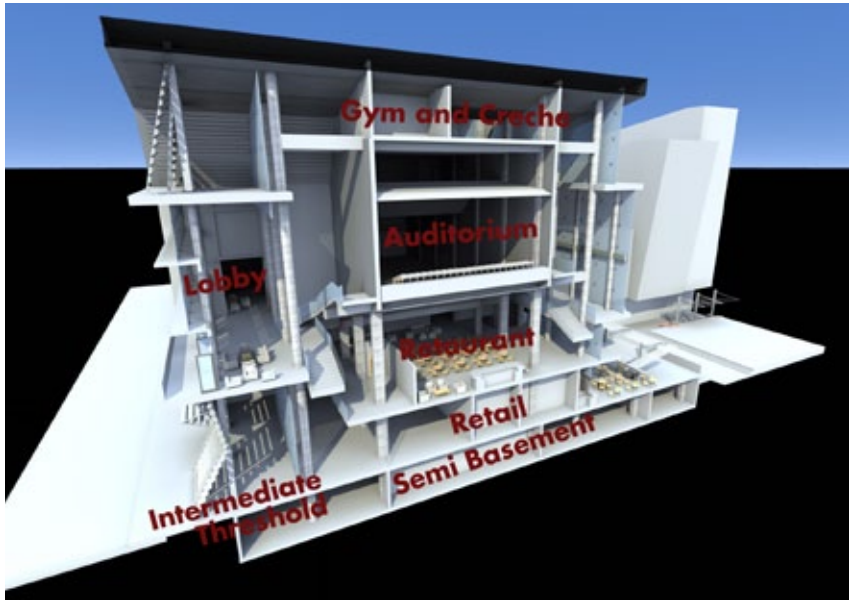
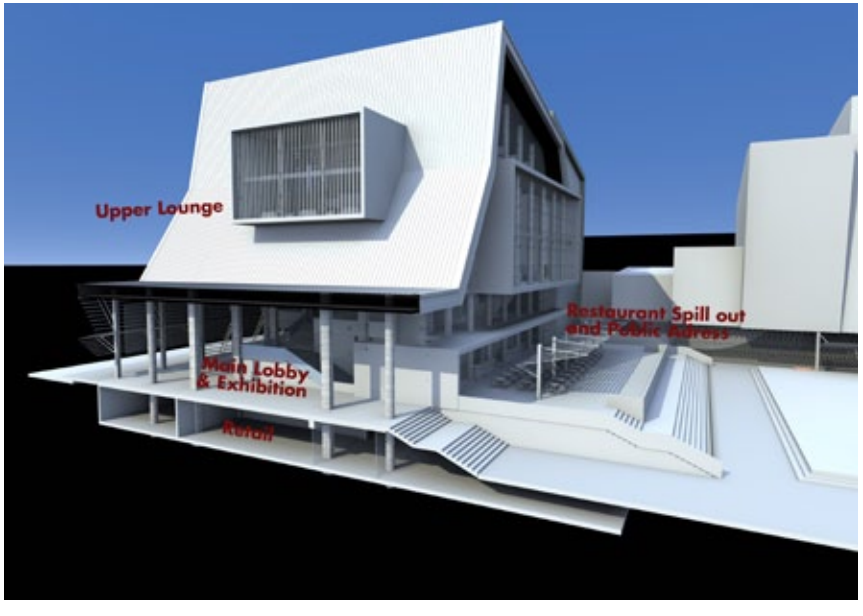


Fig. 6.24 Perspective Section showing spatial and Volumetric arrangement



TECHNOLOGY AND MATERIALS 07

Cooling,Ventilation

- Due to the fact that building has a deep floor plan and there are a lot of spaces that need to be closed off,the building makes use of mechanical ventilation as its primary means of cooling. The system is aided by means of a rock storage system in the basement. This is filled with Rubble from the demolition of the SITA building which should have up to 70 percent similar mass properties of granite.
- Fresh air well ne mechanically sucked in from above the building where vehicle emissions are at a minimum and drawn in a long distance and over the rubble in the rock store in order to cool the air a few degrees before passing through the hvac system. This will cut down considerably on mechanical running costs.
- The system will be specified by an engineer however ample space has been allocated to provide for this facility
- For the restaurant square below ground, there is an evaporative cooling pond with trees around it to aid localized cooling.

Fig. 7.1 Basement plan showing cooling and ventilation

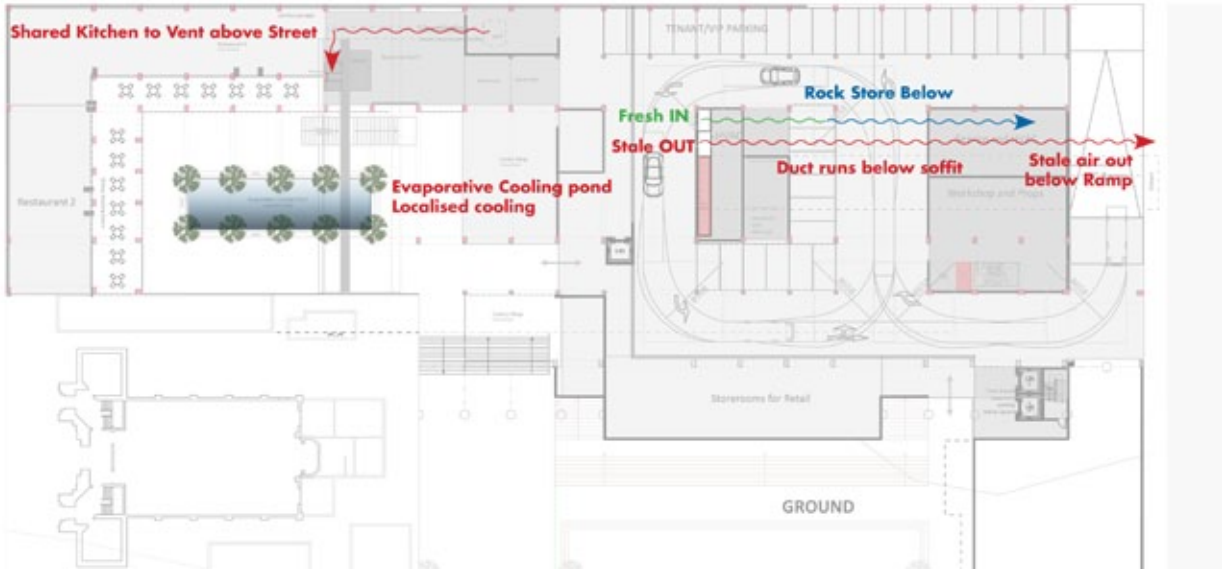
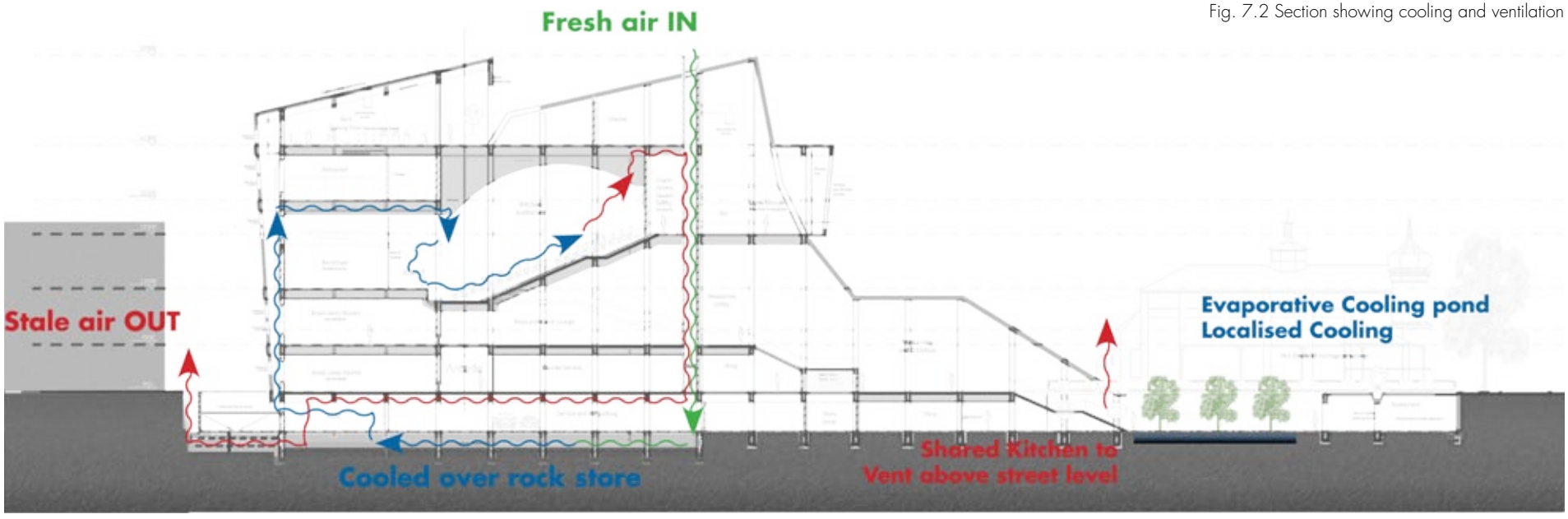


Fig. 7.2 Section showing cooling and ventilation



Rainwater Collection

The total run-off capacity that can be harvest from both roof structures is 53000L which will be stored in 5000l Tanks as indicated. There are 61 w/c's and 26 Urinal's which would justify the collection and re-use of rainwater through these wet services. According to the calculations (appendix A) with the storage capacity there will only be four months of the year where the building will have to make use of municipal water to supplement the system.

Fig. 7.3 Roof plan showing water harvesting capacity

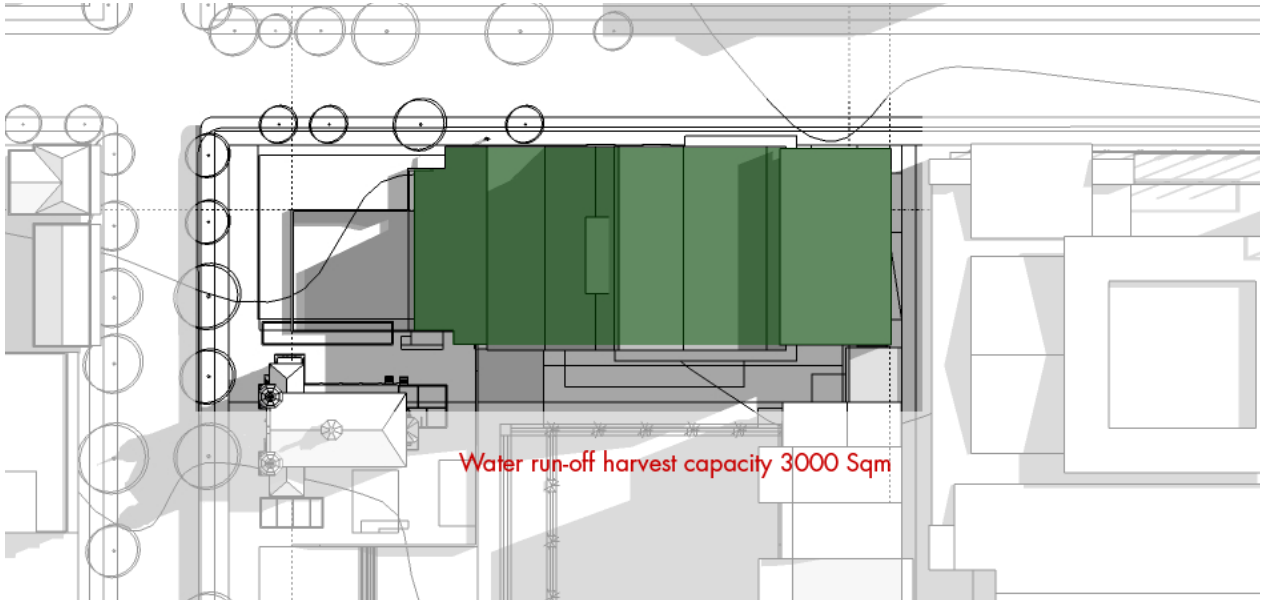
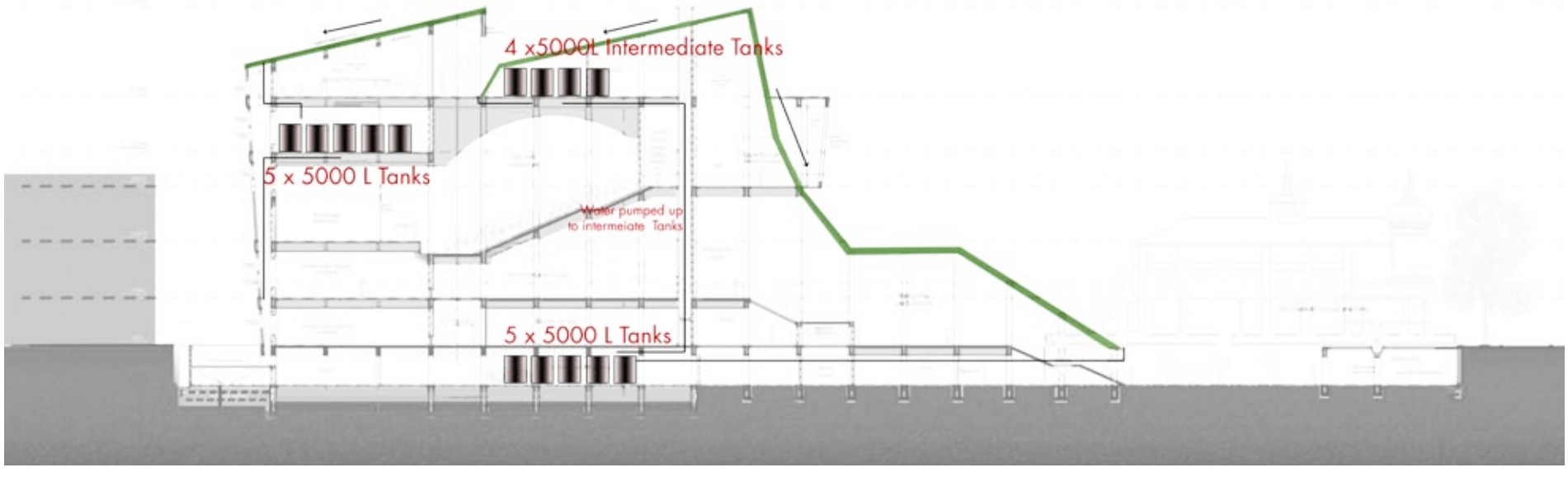


Fig. 7.4 Section showing storage tanks



Fire Safety and Evacuation

Provision of Fire hose reels has been made on every level each servicing a maximum of 30m radius. Due to the large open volumes and the possibility of fire jumping between floors, it is proposed that a sprinkler system be installed. There is also Provision for evacuation by means of fire stairs at every level. The exit of these stairs is close to the buildings exit on Ground Floor

Fig. 7.5 Plan showing the maximum range of the proposed fire hose reels

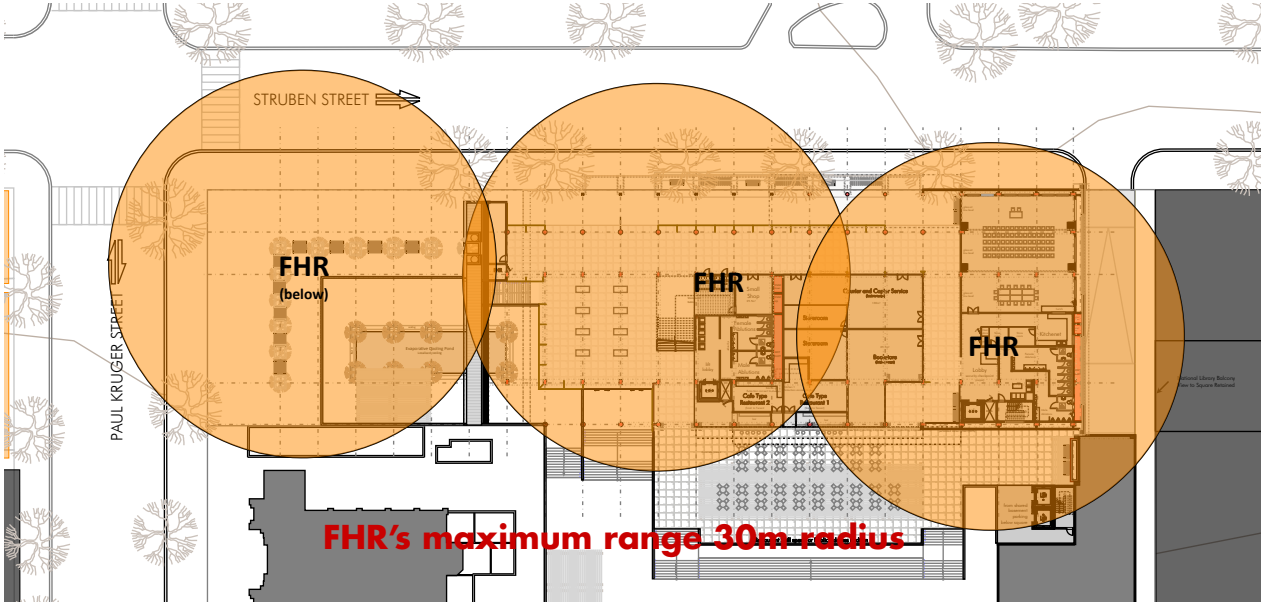


Fig. 7.6 Perspective showing auditorium lobby space with view to square and Synagogue.

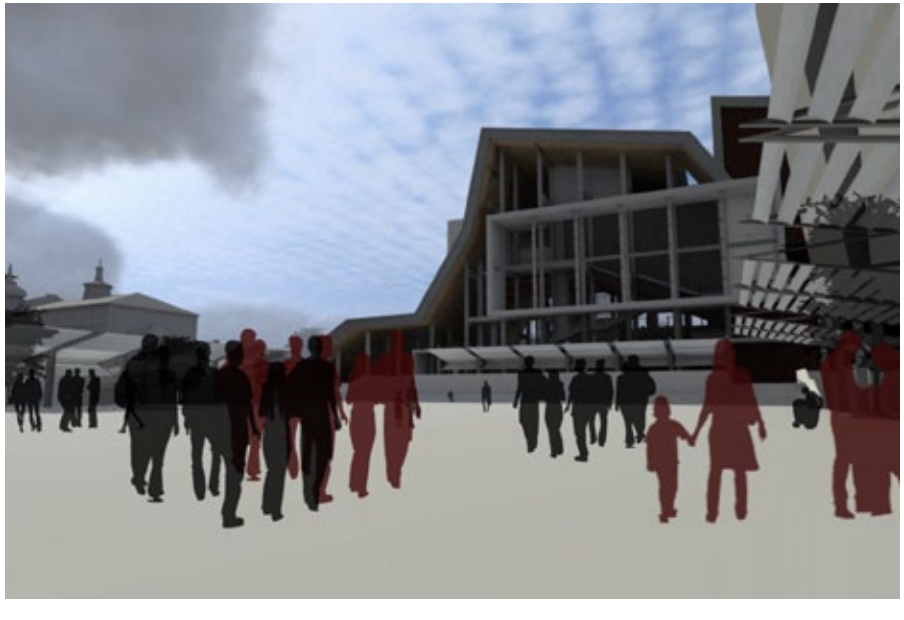
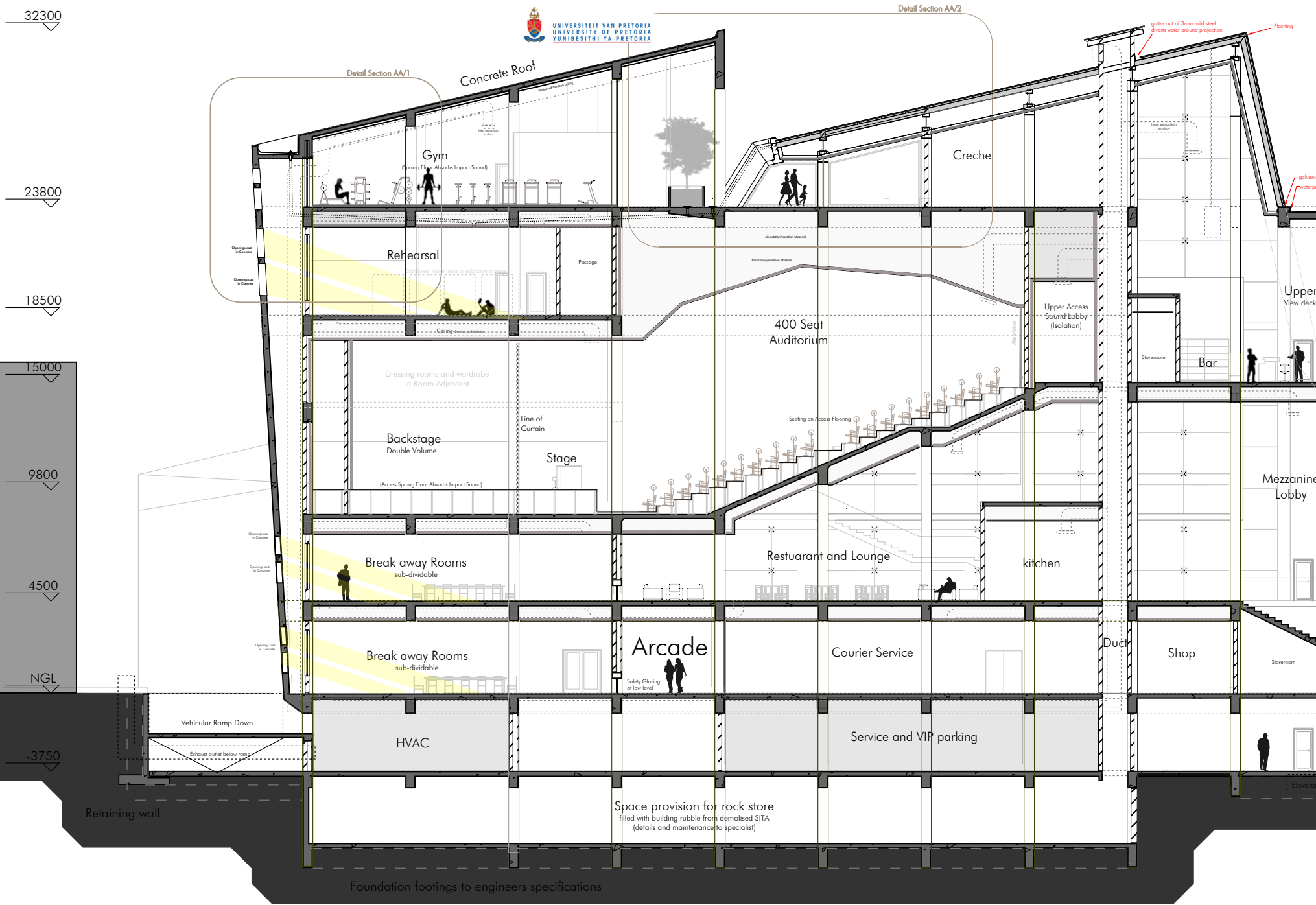
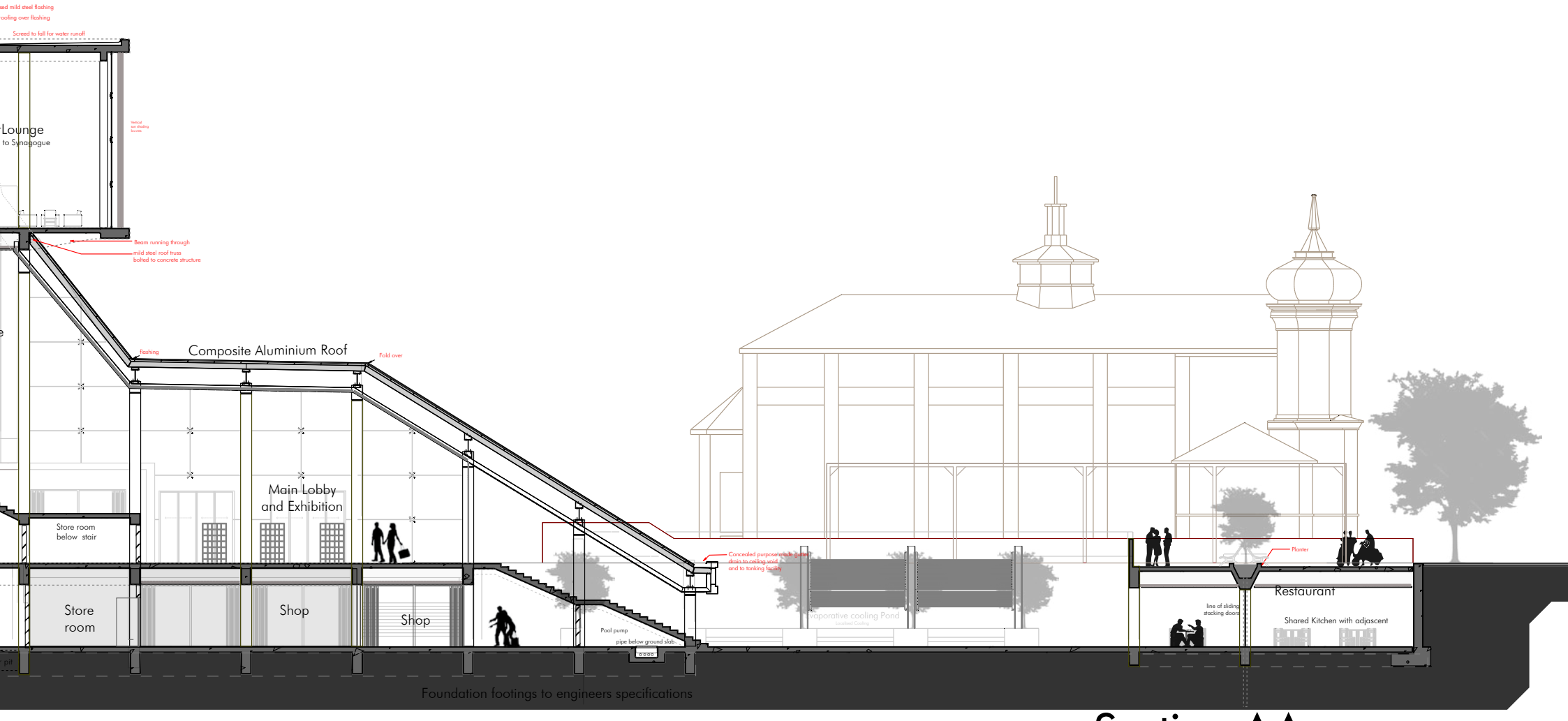


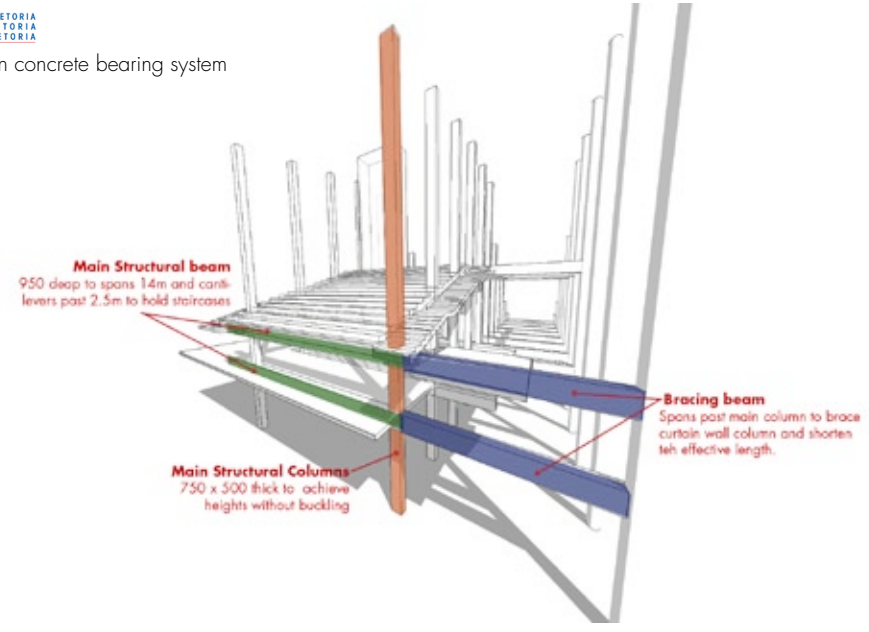
Fig. 7.7 Perspective showing public square and the connection to the intervention


32300
23800
18500
15000
9800
4500
NGL
-3750
Detail Section AA/1
Detail Section AA/2
Concrete Roof
Gym
(Sprung Floor Absorbs Impact Sound)
Creche
Rehearsal
Passage
Dressing rooms and wardrobe in Room Adjacent
400 Seat Auditorium
Upper Access Sound Lobby (Isolation)
Storeroom
Bar
Upper
View deck
Line of Curtain
Backstage
Double Volume
Stage
(Access Sprung Floor Absorbs Impact Sound)
Seating on Access Flooring
Mezzanine Lobby
Break away Rooms
sub-dividable
Restuarant and Lounge
kitchen
Arcade
Safety Glazing at low level
Courier Service
Duct
Shop
Storeroom
Break away Rooms
sub-dividable
Vehicular Ramp Down
Exhaust outlet below ramp
HVAC
Service and VIP parking
Retaining wall
Space provision for rock store
filled with building rubble from demolised SITA
(details and maintenance to specialist)
Foundation footings to engineers specifications
gutter out of 3mm mild steel
diverts water around projection
Flashing



Section AA Scale 1:250

Fig. 7.9 Showing main concrete bearing system

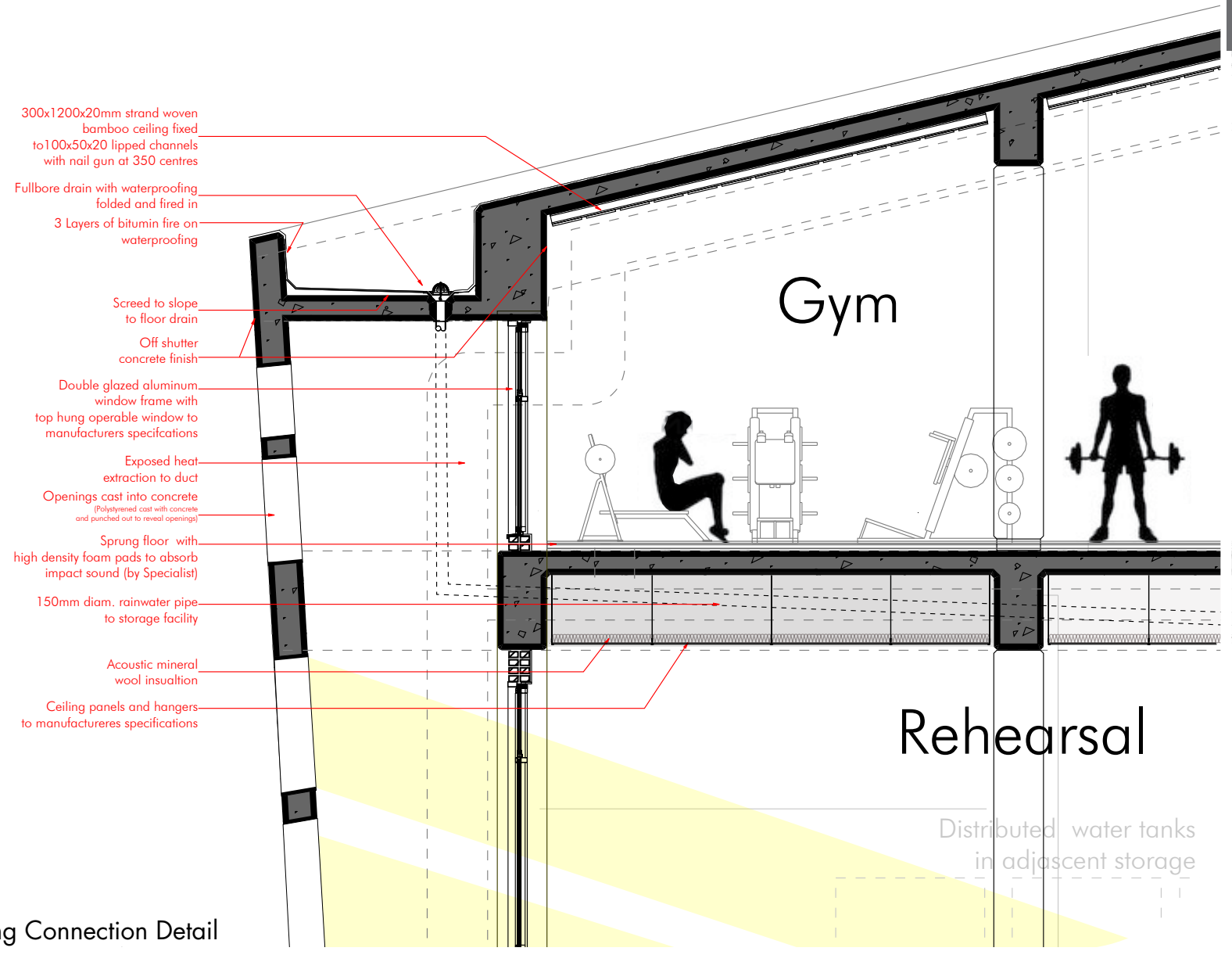


Structure and Enclosure

Concrete

- The main load bearing structure is a column and beam concrete structure. It is a very heavy structure as there are large spans and high columns.
- Off-shutter concrete is a very honest material. It is strong yet elegant. The adjacent photo shows the ceiling in the entrance lobby of Constitutional Court in Johannesburg where a similar finish has been used with long openings cast in to bring in light. The Eastern side of the building will be treated in a similar manner.

Fig. 7.10 Photo of the inside of the constitutional court taken by author.



AA/1 Wrapping Connection Detail

Roofing

Standing seam aluminium

In order to give a smooth finish to the wrapping structure, a standing seam jointed aluminium sheeting will be used. This will emphasize the verticality of the roof rising up from the ground. It also provides stability to span between the steel supports. Aluminium has a high corrosion resistance, gives a clean homogenous appearance and is low on maintenance as it does not oxidize. Recycled powder coated aluminium will be used as recycled aluminum has very low embodied energy and powder coating in this specific angled application is smoother than anodizing and therefore will retain less dirt.

Fig. 7.12 Standing seam roof finish (http://lgcroofingnj.com)

Fig. 7.13 Standing seam roof finish (http://www.euroclad.com)

AA/2 Wrapping Connection Detail

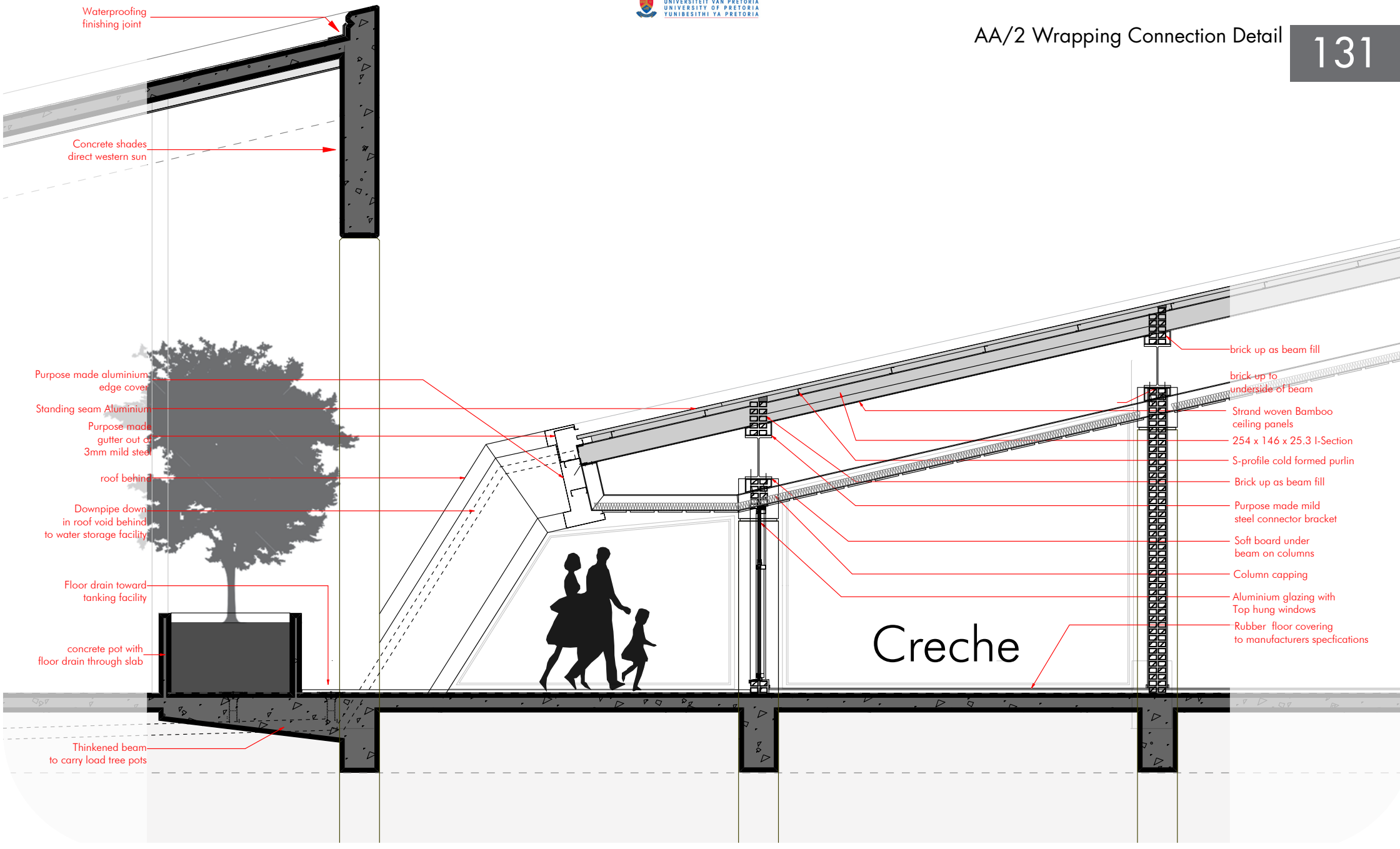


Fig. 7.15-7.17 Showing the Rose Centre at the Museum of Natural history in New York. This transparent building has a very high curtain wall supported by a tensioned stainless steel system similar to the system employed within this project.

Glass Curtain Wall

In order for the Threshold wall to appear as light and transparent as possible, a glass curtain wall supported by as little structure as possible is employed. The glazing panels are held in place by stainless steel spider clamps suspended by high tensile steel cables which brace both the curtain wall and the round columns that carry the load. The glazing is shaded by a louvre system explained earlier in this section. Due to the fact that the curtain wall is very high and will need to therefore withstand wind loads, even though Pretoria is not very windy, as well as contribute to reducing the solar light transmission, the following laminated glass was chosen.

Armourlam:
Armourlam toughened glass from Smart glass will be used with a cool blue low E laminate allowing only 68 percent of light in, thus reducing glare.

- Armourlam is with polyvinyl butyral between 2 layers of glass. As it is toughened it can be supplied with factory drilled holes for fitting of spider clamps in this application.
- Its is best suited for bolted assemblies where solar performance is required
- It works well where additional strength is needed for high wind loads.

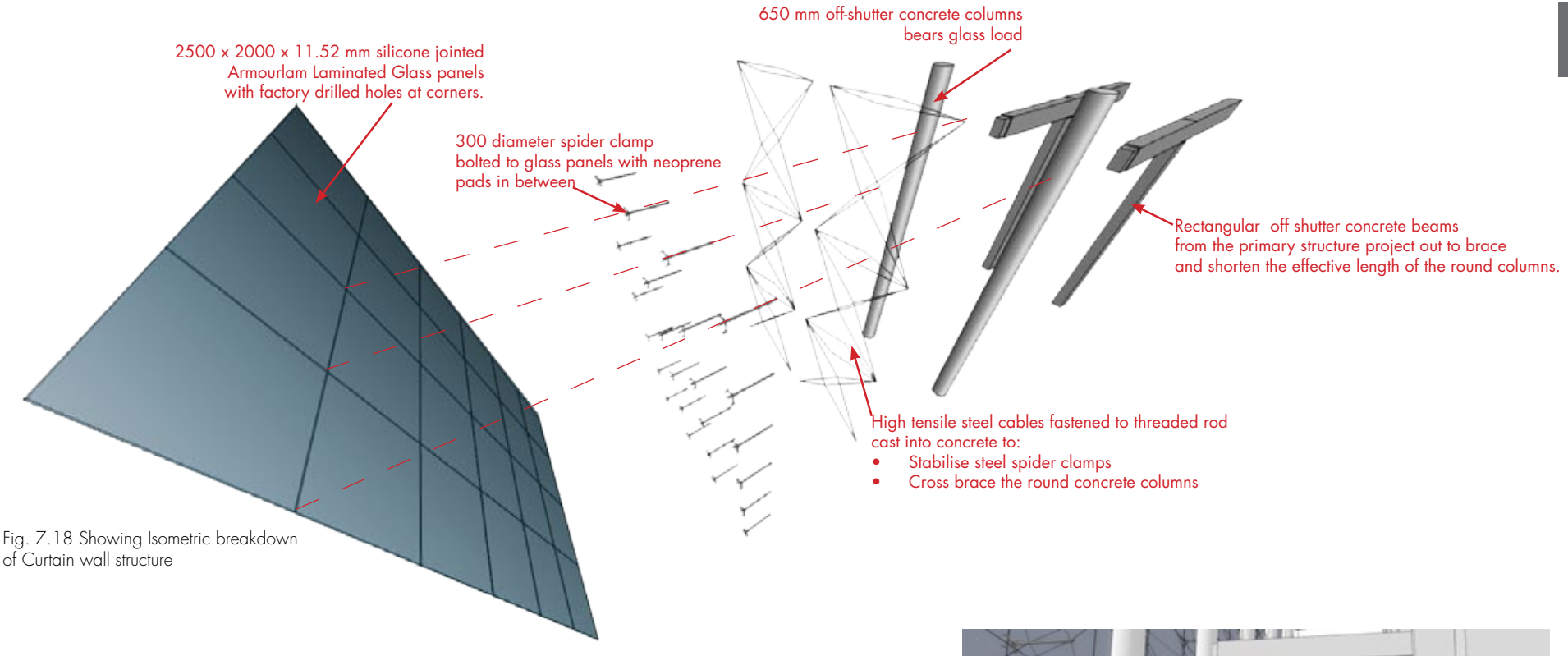


Fig. 7.18 Showing Isometric breakdown of Curtain wall structure

Fig. 7.19 showing glass curtain wall down public arcade

Fig. 7.20 Showing Intervention in context from the North West.

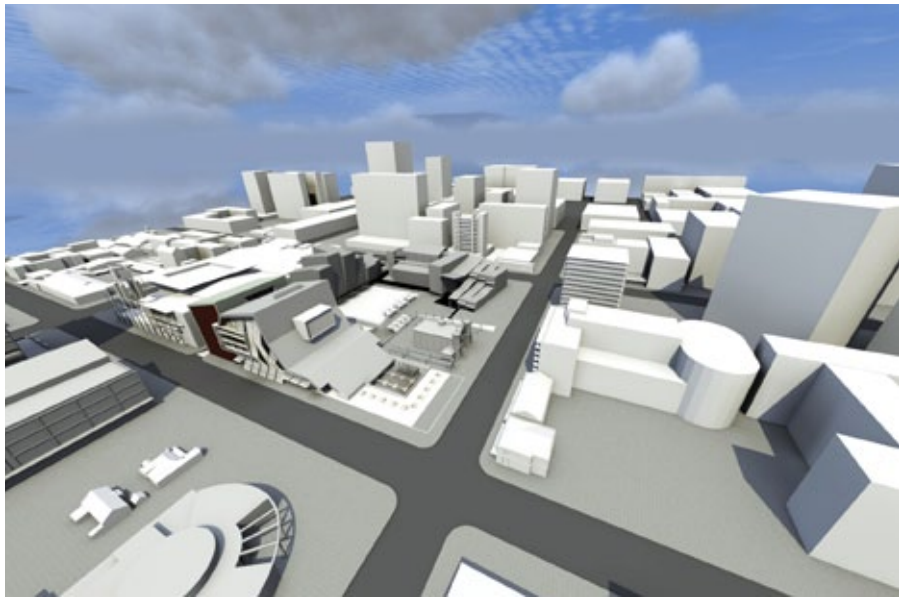
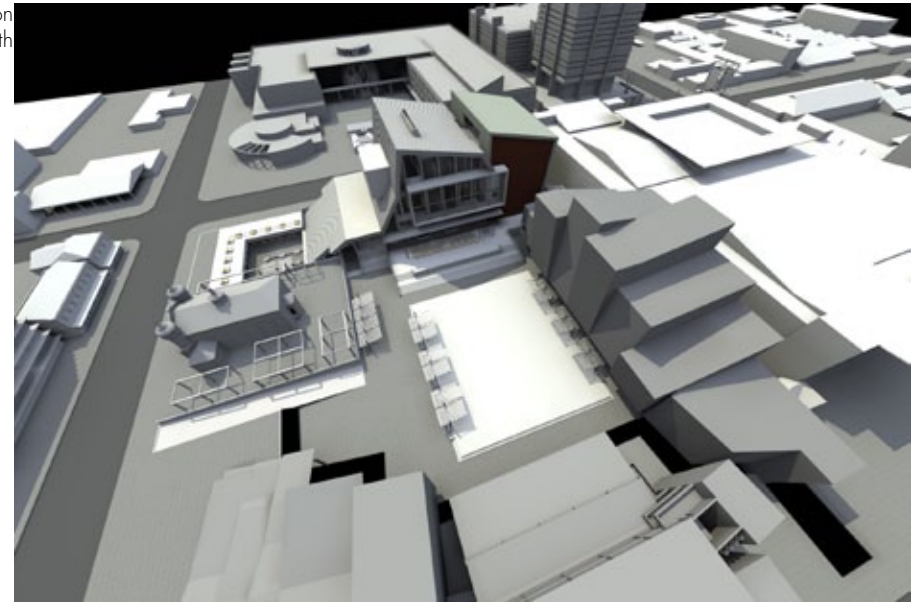
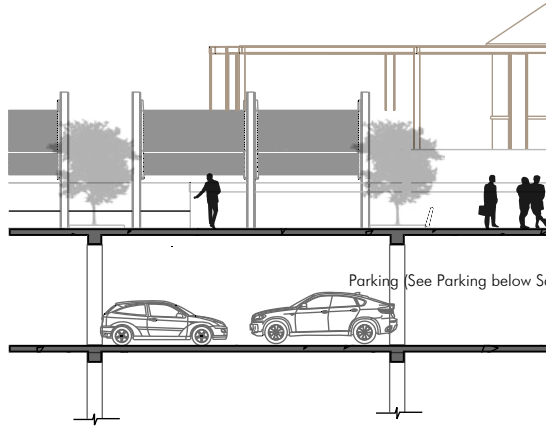
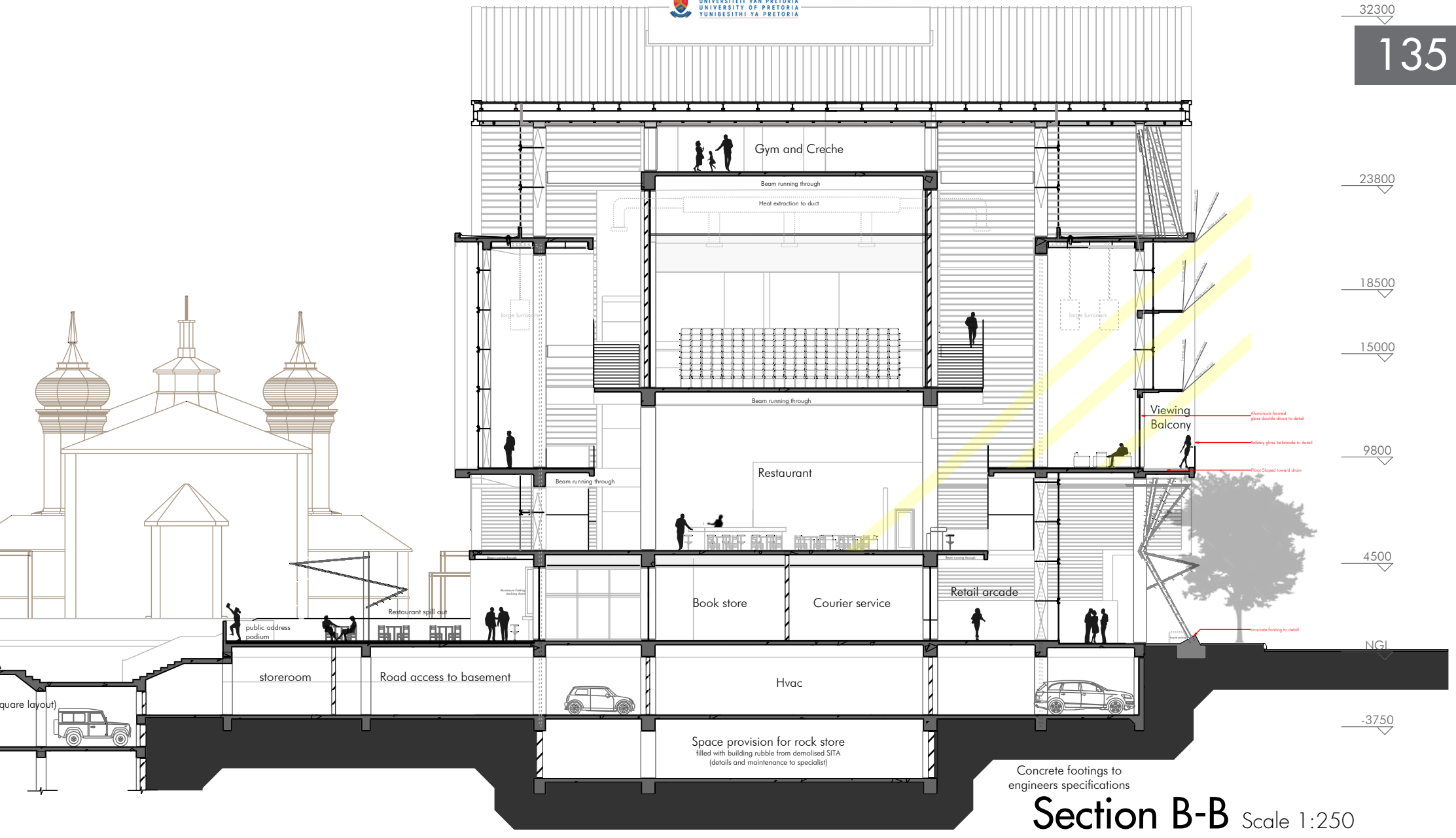


Fig. 7.21 Image showing intervention in context from the South

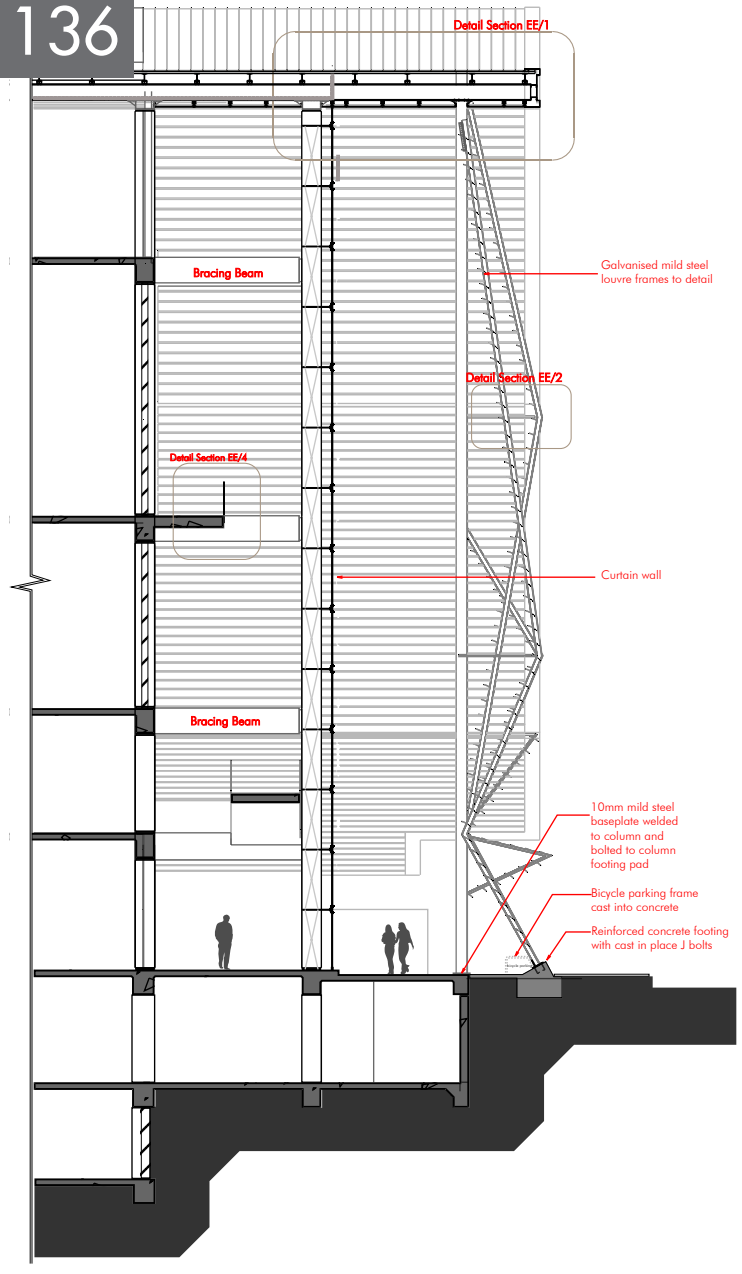






Section B-B Scale 1:250

Section EE Scale1:200



Skin
Louvre Structure

In order to shade the Northern glass curtain wall from direct sun a louvre system has been employed. This creates an intermediate threshold and is designed to cast dappled light onto the glass during the winter months both for small heat gains as well as effect. The louvre frames carry there own weight and are connected to the under side of the composite wrapping structure supported by the beams at the same interval. These frames are large trusses turned on their sides (90 degrees), with the bend of the frames alternating with each consecutive frame system. Each louvre frame system is braced and supports perforated aluminium louvre fins which are held in place by tensioned threaded rod.

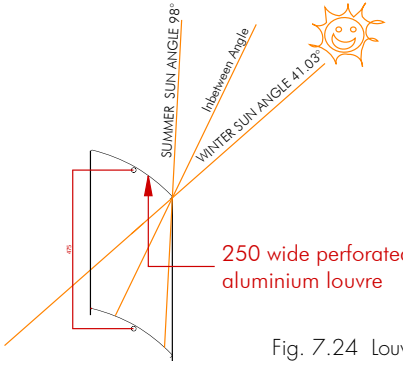
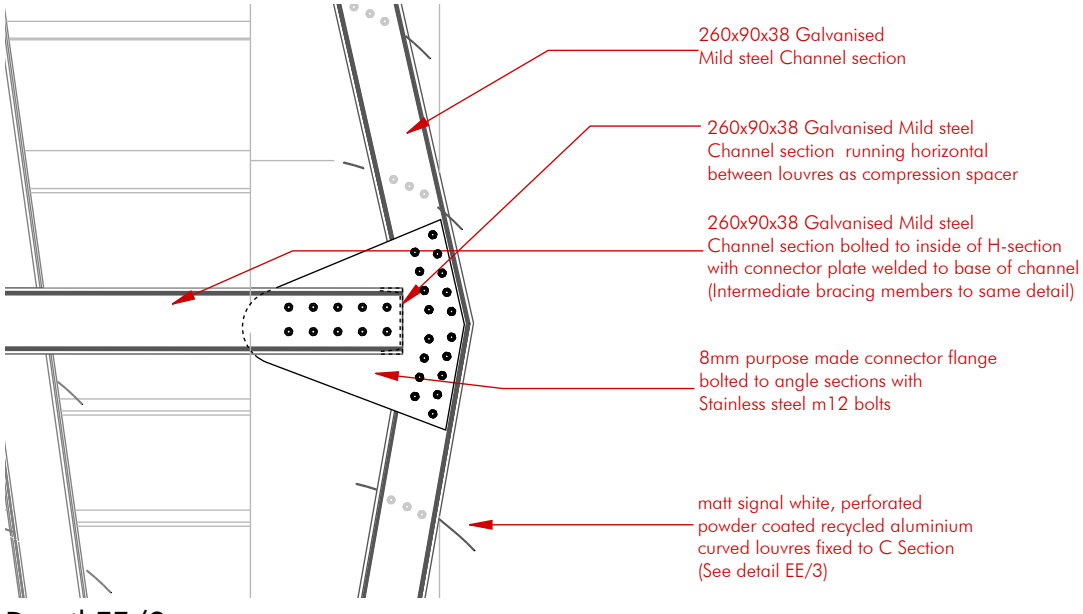
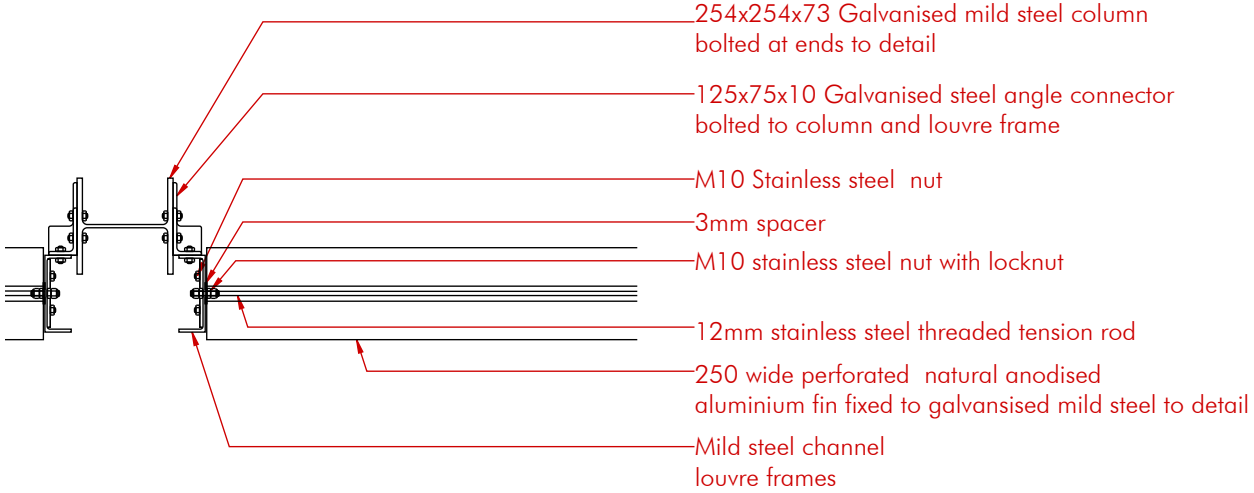


Fig. 7.24 Louvre spacing

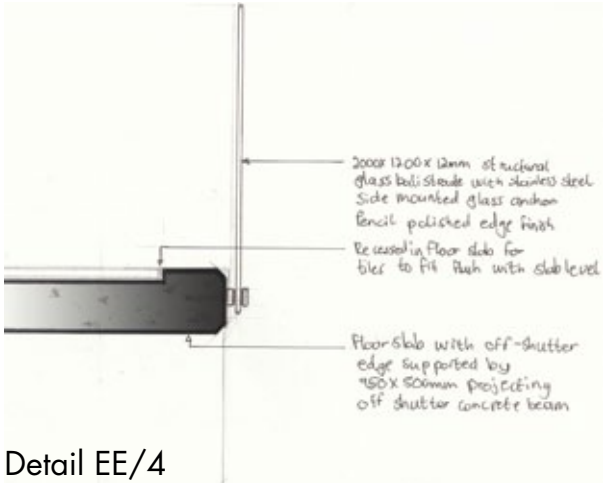
Fig. 7.25 Perspective showing the Northern view from Struben street



Detail EE/2 Scale1:20



Detail EE/3 Scale1:20



Detail EE/4

Fig. 7.29 Bamboo

Laminated Bamboo Ceilings

- Bamboo is a every sustainable material. It grows very quickly and the mature stem is more rigid than a lot of hard woods. Solid timber like oak, cherry or teak take 40-50 years to grow, whereas the Moso bamboo stems take 4 years to reach mature hardness. Bamboo plantations require no pesticides or fertilizers.
- Although strand woven panels are more expensive than the solid bamboo panels, it gives a darker finish with a softer grain and is more hard wearing. Standard size of 2.44 x 1220 will be used as ceiling panels.(www.panda-bamboo.co.za)

Fig. 7.30 Showing Strand woven bamboo finish (www.pandabamboo.co.za)

Fig. 7.31 Showing laminated bamboo cladding (www.pandabamboo.co.za)

Detail EE/1

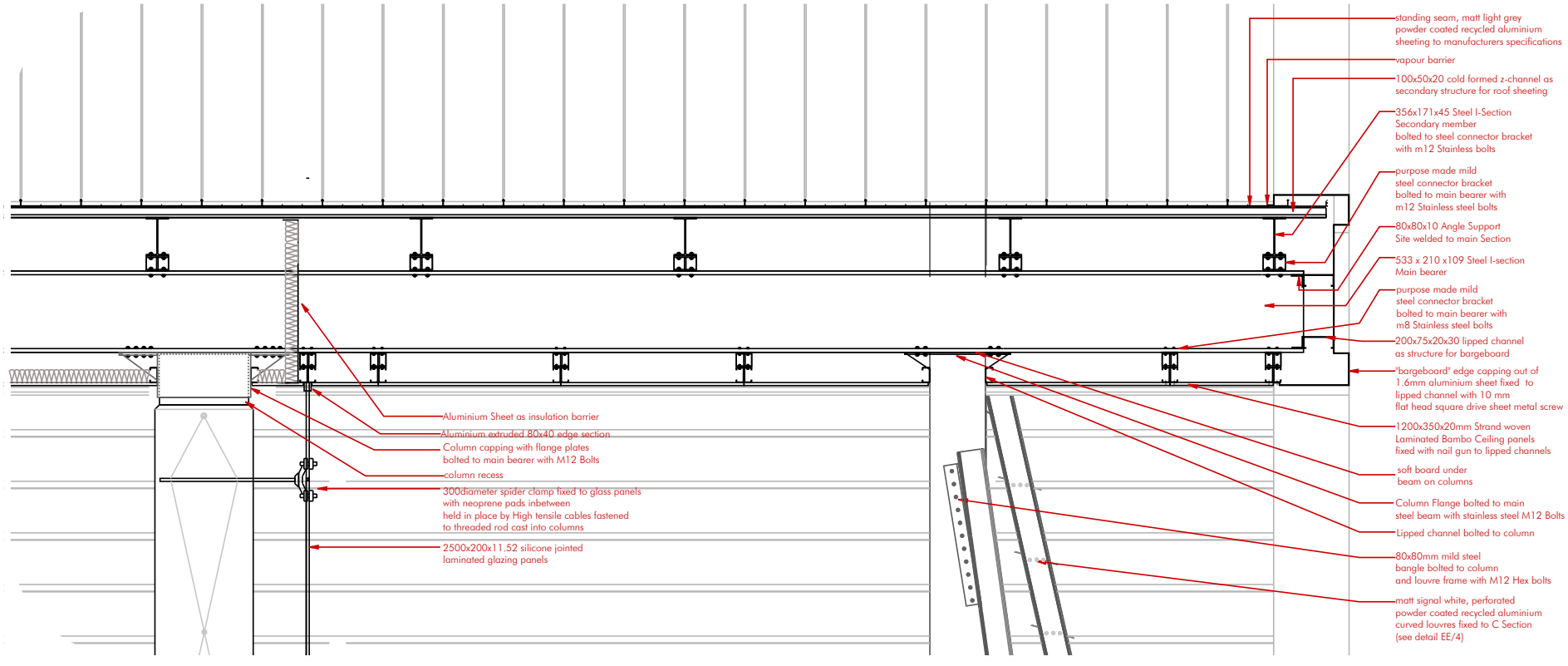

standing seam, matt light grey powder coated recycled aluminium sheeting to manufacturers specifications
vapour barrier
100x50x20 cold formed z-channel as secondary structure for roof sheeting
356x171x45 Steel I-Section Secondary member bolted to steel connector bracket with m12 Stainless bolts
purpose made mild steel connector bracket bolted to main bearer with m12 Stainless steel bolts
80x80x10 Angle Support Site welded to main Section
533 x 210 x109 Steel I-section Main bearer
purpose made mild steel connector bracket bolted to main bearer with m8 Stainless steel bolts
200x75x20x30 lipped channel as structure for bargeboard
"bargeboard" edge capping out of 1.6mm aluminium sheet fixed to lipped channel with 10 mm flat head square drive sheet metal screw
1200x350x20mm Strand woven Laminated Bambo Ceiling panels fixed with nail gun to lipped channels
soft board under beam on columns
Column Flange bolted to main steel beam with stainless steel M12 Bolts
Lipped channel bolted to column
80x80mm mild steel bangle bolted to column and louvre frame with M12 Hex bolts
matt signal white, perforated powder coated recycled aluminium curved louvres fixed to C Section (see detail EE/4)
Aluminium Sheet as insulation barrier
Aluminium extruded 80x40 edge section
Column capping with flange plates bolted to main bearer with M12 Bolts
column recess
300diameter spider clamp fixed to glass panels with neoprene pads inbetween held in place by High tensile cables fastened to threaded rod cast into columns
2500x200x11.52 silicone jointed laminated glazing panels

Fig. 7.33 Image showing View from Struben street of intervention and section clad with perforated Corten.

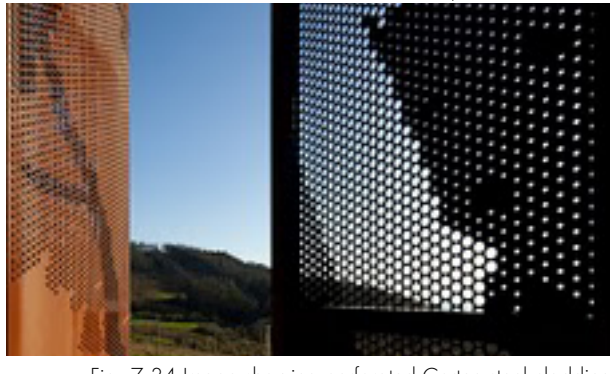


Fig. 7.34 Image showing perforated Corten steel cladding (http://imararquitectura.blogspot.com)

Fig. 7.35 Image showing perforated Corten steel cladding (http://imararquitectura.blogspot.com)

Corten Steel

In order for the facade of the Eastern portion of the building to appear as an homogeneous haze, in line with the conceptual approach of it being "solid, but not quite" it will be clad with circular punched Corten steel with 60 percent coverage. This will be enough to give a virtually solid haze with the effect that the operable windows behind to appear as shadows during the day and hazed light at night. Corten steel is a high strength low alloy structural steel that forms a protective oxide layer under regular atmospheric conditions. This means that the steel can be left unpainted. It has a reddish brown colour.

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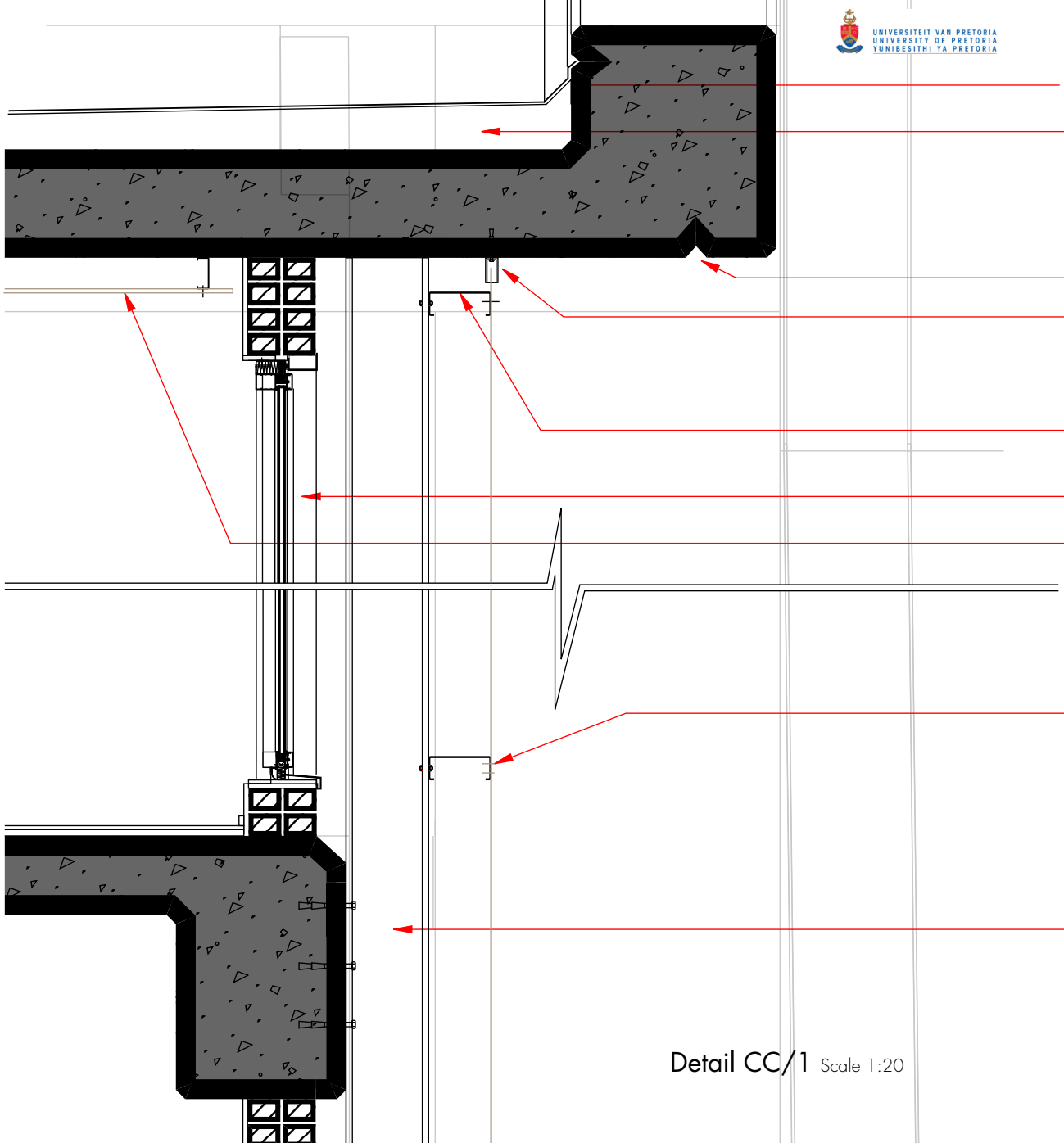
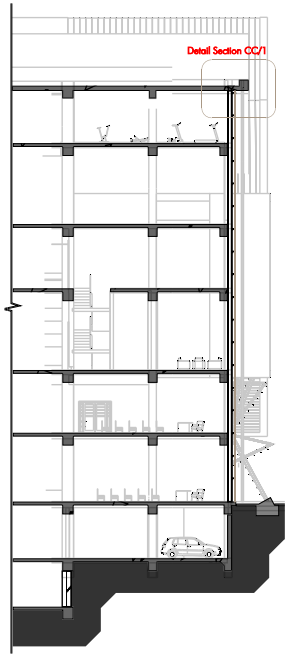


Detail CC/1 Scale 1:20

Reference Section CC

Scale 1:500



Conclusion

The creation of a spatial milieu that contributes favorably to the urban fabric is possible through interpretation of the context, historical, present and future. People's experience of the built environment should be an over-arching design informant. This being that the user's first impression and interaction with his/her environment as well as lasting impressions and greater social implications should be taken into account in public orientated design.

People perform multiple task during a single day and therefore the built environment should supply these needs within localized precincts to cut down on excessive travelling distances an ensuing frustrations and sustainabilities. This is all possible through mixed used precincts and buildings. Considering that the informants to this thesis have proposed a building with multiple uses layered hierarchically according to various privacy needs.

The validity of individuals in their social context can be enforced through the creation of spaces that are clearly express their given function. It is possible therefore to have transparency within government buildings whilst still maintaining effective control.

Social satisfaction and inclusion can be encouraged through a government building model that has private functions but also invites the public into closely situated intermediate realms where communication, interaction and dialogue can happen.

APPENDIX 08

Appendix A

Rainwater Harvesting and tank size

Area of roof (m2)	**Annual rainfall (mm)**	**Potential rainfall harvesting capacity(L)**	**Actual rainfall Harvesting capacity (L)** -10%(evaporation)
3000m2	573mm	53000L	47700L

Table 1

Total number devices	**Water consumption device**	**Water consumption (L)**	**Number of uses per day per device**	**Water Consumption per floor (L)**
60	Flush Toilet	4.5	8	144
25	Urinal	1	16	32
x 23.5 days active per month average for building (Monthly consumption)				47800

Table 2

	V_{actual}	V_t	V_{t-1}	**Rainfall (mm)**	**Runoff (l)**	**Roof Runoff (l)**
Oct	40000	117800	0	71	165600	0
Nov	40000	222600	40000	98	230400	0
Dec	40000	251400	40000	110	259200	211400
Jan	40000	313800	40000	136	321600	273800
Feb	40000	167400	40000	75	175200	127400
March	40000	184200	40000	82	192000	144200
April	40000	109800	40000	51	117600	69800
May	18600	18600	40000	13	26400	0
June	-17200	-17200	18600	7	12000	0
July	-62600	-62600	-17200	3	2400	0
Aug	-100800	-100800	-62600	6	9600	0
Sep	-100600	-100600	-100800	22	48000	0

Table 3

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Table 3

REFERENCES 09

References

- NEWMAN, O. (1972). Defensible space; crime prevention through urban design. New York, Macmillan.
- http://www.rekgabisatshwane.gov.za/gallery_precints.html
- Kostof, S. 1991. The City Shaped: Urban Patterns and Meanings through History. New York: Bulfinch Press
- Rasmussen, SE. 1992. Experiencing Architecture. USA: Massachusetts Institute of Technology
- Sausmarez, M. 1964. Basic Design: The Dynamics of visual form. London: Studio Visa
- Arnheim,R. 1971. Entropy and Art: An essay on disorder and order. USA: University fo California Press
- Bonta, JP. 1979. Architecture and its appreciation. Great Britain:W&J Mackay Ltd
- Smith, PF. 1987. Architecture and the principle of harmony. London: RIBA
- Smalberger,M.2007. Portal to Pretoria:Establishing a northern gateway to the city.MArch(Prof.) thesis. University of Pretoria(p.53-54)
- Plekke en Geboue van Pretoria,volume twee. Edited by S.le Roux and N. Botes. 1991. Stadsraad van Pretoria
- Durack, R. 2004. Shrinking Smart the promise of Landscape Urbanism , Cleveland Urban Design
- Collaborative Quarterly, 3:3/4 – Winter 2004 Internet http://www.cudc.kent.edu/ecudc-Quarterly/viewpoint/durack4.html Retrieved 15 February 2010
- WALDHEIM, C. 2006. The Landscape Urbanism Reader ,Article :Shane, G. The Emergence of Landscape Urbanism (p55-67) New York: Princeton Architectural Press
- Spellman, C. 2003. Re-Envisioning Landscape/Architecture. Barcelona: Actar Branzi, A. 2006. Weak and diffuse Modernity. The world of projects at the beginning of the 21st Century. Italy : Skira
- BARNETT, J. (2003). Redesigning cities: principles, practice, implementation. Chicago, Planners Press.
- Smith, PF. 1987. Architecture and the principle of harmony. London: RIBA
- http://www.galinsky.com/buildings/villette/index.htm, viewed 21 May 2010
- http://www.archidose.org/Feb99/020199.htm, viewed 22 May 2010
- http://www.galinsky.com/buildings/villette/index.htm, viewed 22 May 2010
- http://www.pps.org/great_public_spaces/one?public_place_id=369, viewed 22 May 2010
- http://www.google.co.za/imgres?imgurl=http://farm1.static.flickr.com, viewed 22 May 2010
- http://www.google.co.za/

imgres?imgurl=http://images, viewed 22 May 2010
- http://www.pps.org/great_public_spaces/one?public_place_id=148&type_id=2, viewed 22 May 2010
- http://www.american-architecture.info/USA/USA-Boston/BO-011.htm, viewed 22 May 2010
- http://www.boston.com/business/articles/2010/04/04/a_softer_city_hall/, viewed 22 May 2010
- www.essential-architecture.com, viewed 23 May 2010
- (http://www.artthrob.co.za, viewed 28 April 2010)
- http://upetd.up.ac.za/thesis/available/etd-02212005-085046/unrestricted/05design-precedents.pdf, viewed 23 May 2010
- http://www.southafrica.info/about/history/constitutionhill.htm, viewed 23 May 2010
- http://www.edpsycinteractive.org/topics/regsys/maslow.html, viewed 23 May 2010
- http://www.international.icomos.org/charters/towns_e.htm, viewed 23 May 2010
- http://www.saia.org.za/documents/The%20Burra%20Charter.pdf , viewed 23 May 2010
- ALLEN, V. (1971). Kruger's Pretoria. Buildings and personalities of the city in the nineteenth century. Cape Town, A.A. Balkema.
- FREDERICK, M. (2007). 101 things I learned in architecture school. Cambridge, Mass, MIT Press(http://thinkexist.com/quotation/all_architecture_is_shelter-all_great/218212.html viewed 5 Oct 2010)
- (http://www.constitutionhill.org.za/, viewed 23Oct 2010)
- http://www.law.umkc.edu/faculty/projects/ftrials/mandela/mandelahome.html viewed 23Oct 2010)
- http://www.sahistory.org.za/pages/people/special%20projects/mandela/bio_4.htm viewed 23Oct 2010)
- http://www.baha.co.za/search?tab_index=1&from_search=1&previous_keyword=&keyword=Synagogue&search.x=0&search.y=0&rm=rm&rf=rf&color=color&bw=b%2Fw&sub_collection%5B%5D=&media_date= viewed 23Oct 2010)
- //www.law.umkc.edu/faculty/projects/ftrials/mandela/mandelaaccount.html viewed 23Oct 2010)
- Cooper, R, Evans, G, Boyko, C. 2009. Designing sustainable cities. United Kingdom: Blackwell Publishing Ltd.
- Powell, K. 2000. City transformed. London: Laurence King Publishing.
- http://www.noticiasarquitectura.info/especiales/xxxx-house.htm, viewed 25 Oct 2010
- http://www.arcspace.com/architects/piano/morgan_library/, viewed 25 Oct 2010
- http://www.architecture.uwaterloo.ca/faculty_projects/terri/steel/rose.html viewed 29 Oct 2010
- http://www.pandabamboo.co.za/Bamboo_products.htm, viewed 29 Oct 2010
- http://www.furniturehomedesign.com/tag/bamboo-products/ viewed 29 Oct 2010
- http://www.idesignproject.com/metal.html, viewed 1 Nov 2010
- http://imararquitectura.blogspot.com/, viewed 1 Nov 2010
- http://www.dailytonic.com/bordings-independent-school-in-copenhagen-danmark-by-dorte-mandrup-architects/, viewed 1Nov 2010