04_historical
_global
_national
_regional
_local
_site

context analysis

C O N T E X T A N A L Y S I S

H I S T O R I C A L

1825_ Paul Kruger born

1840_ First homestead in Fountains Valley built

1840_ Andries Pretorius, a leader of the Great Trek in Natal and then Transvaal

1854_ Elandspoort village proclaim "kerkplaats" for central Transvaal

1855_ Founding of Pretoria as a town

1860_ Pretoria declared official capital of the independent Voortrekker Republic of Transvaal

1870_ Marthinus Pretorius is replaced by Reverend Thomas Francois Burgers as president

1873_ University of South Africa founded in Pretoria

1877_ British annex Transvaal resulting in flow of migrants and immigrants

1880_ First Boer War

1881_ Pretoria Convention signed after the First Boer War

1888_ Jacarandas brought into the city from Brazil by J.D Cilliers

1902_ Signing of the Peace Treaty of Vereeniging

1910_ Pretoria made capital of the Union of South Africa

1910_ Church Square redesigned as a tramway to

disappointment of residents

1930_ University of Pretoria founded

1954_ Statue of Paul Kruger relocated to Church Square

1970_ Public outcry over intended government tower buildings on Church Square stops development

1994_ Abolishment of apartheid state

1997_ Bus parking areas on Church Square removed

2006_ Present

G L O B A L   R E G I O N A L

Pretoria as the capital of South Africa has strong international diplomatic relations with the establishment of all foreign embassies found throughout the city. The Union Buildings designed by Sir Herbert Baker act as the central seat of governmental power where the president receives many international dignitaries. Pretoria's importance in the global realm is also set to expand in the future with the governments plans to establish Pretoria as the capital city of the African continent. Thus not only will Pretoria be required to speak of the South African people as a nation but it will required to speak of and relate to African people as a world community.

Future development along these lines has identified Pretoria as the city for the construction of the African Parliament, to act as the central seat of power throughout Africa. Initiatives such as NEPAD and the countries of the SADAC region will utilize this facility to develop laws and trade agreements between the countries in Africa, striving for peace, economic stability and prosperity.

N A T I O N A L

Pretoria as the official capital of South Africa is also the administrative capital of the country. Home to all government departments spread throughout the city there is a high concentration of large corporations, legislation bodies, NGO's and commerce which dictates the countries economy in connection with the other major centres in the country. The emergence of Pretoria as a leading city dates back to the discovery of gold and diamonds in the Johannesburg and surrounding regions. In addition the development of the first Iskor steel mills near the city helped establish the important infrastructure backbone of the region.

The city of Pretoria serves the needs of not only its inhabitants but the residents of outer lying communities too. The establishment of 'worker towns' around the city during the apartheid era has established Pretoria as the heart being fed by a network of settlements. Soshanguve, Mamelodi and Atteridgeville are all large townships which feed the city with workers and labourers on a daily basis. Several smaller industrial townships are also interspersed through the countryside, providing infrastructure support and services.

To the south of Pretoria is Centurion, a rapidly expanding residential area for people working in both Johannesburg and Pretoria. Massive housing estates and office park developments dominate this area which fulfils the role of extended suburbia to the main city.

Further south still is Midrand, a largely undeveloped semi-industrial, semi-commercially zoned area which forms the outer country separation between the cities of Pretoria and Johannesburg. This however is soon to change with massive plans to establish the Midrand area as yet another pool of residential potential between the two main cities.

Johannesburg to the south of Pretoria forms the opposite end of one of the most travelled and economically active corridors in South Africa, following the route of the N1 highway.

L O C A L

Within Pretoria is a wealth of historical references to the rise of South Africa as a country. Since 1860 with the declaration of Pretoria as the capital of the Voortrekker Republic of Transvaal, it has remained so and the architectural development reflects the strong administrative capital city it is today. Examining the local context of the site, one finds many typical buildings in both function and style of the Pretoria region.

Fig.6_01.St. Albans Church, Pretoria (above)

Fig.6_02.Telkom buildings, Pretoria (left)

Fig.6_03.Opera Plaza building, Pretoria (below)

Fig.6_04.Laboriagebou, Pretoria

Fig.6_05.Unknown building, Pretoria

Art Deco
Constantia Court, Amanda Centre

Art Nouvea
Burlington house, Café Riche

Neo-Classicism
Old Mutual Building, Standard Bank Building

Victorian
Laboriagebou

Baker School
Union Buildings, St Albans Church

Modernism
Garthforth House

International Style
Eaton Hall Private Hotel

Brutalism
Telkom buildings

Brazilian Modernism
Receiver of Revenue Building

Le Roux, S W, 1990

STUDY AREA
SITE
ADDRESS

The site lies on the corner of Paul Kruger and Vermuelen Streets, one city block north of Church Square. There is an existing twenty storey tower positioned on the south-western corner of the site allowing the remaining north and eastern portions of the site to be developed.

B U I L T F A B R I C

The city structures surrounding the site are all multi-storey buildings, rising higher than the proposed design. As mentioned previously, the VWL Sentrum office tower stands on site at twenty storeys, one of three towers of this height in the city block.

To the north separated by the adjacent site's access road, is the Woltemadegebou residential block, rising eight storeys into the air providing partial northern protection. East of the site is the seven storey Pretoria News building requiring access to the rear printing areas.

Several similar residential blocks exist to the north of the city block with a massive twenty-four storey tower in the north east corner of the city block. The equally impressive twin towers of the High Court Chambers building lies to the extreme east of the city block.

F I G U R E G R O U N D S T U D Y

S U R R O U N D I N G I M P A C T

With the intended construction of the project within such a limited area, concern was noted over the possible impact the structure could have on the existing buildings. The following decisions were taken and used to inform the design during development:

_01 The eastern edge of the site facing the Pretoria News building required and access road to the rear service area. Thus the building façade will be set back to allow limited access into the interior of the site whilst creating an external protected space onto which the facility can open during good weather.

Fig.6_06.Aerial photo of city centre (right)
Fig.6_07.Terrain model (below)

_02 The northern edge of the site facing the Woltemadegebou building already has a significant distance between the buildings and will not require any special attention from the design.

_03 The tower of the VWL Sentrum will be influenced on two sides by the intended project. However since the building is mechanically ventilated only, there are no opening windows to the outside. This will allow construction right up to the buildings façade with the provision that sufficient design with regards to lighting permit a continued use of the internal office spaces. These edges are thus identified as the ideal position for the creation of the arcade to provide both access and light to both structures on the site.

P U B L I C T R A N S P O R T

At present the main Pretoria North bus stop servicing the Paul Kruger North areas is located opposite the western edge of the site. The southern edge borders on Vermuelen Street, a very busy four lane single direction carriageway moving east with multiple bus and taxi stops along its length.
In addition, Church Square, one block to the south, remains a central transport point for the entire city providing ample opportunity to get to and from the site.

P E D E S T R I A N M O V E M E N T

Church Square acts as a large magnet within the surrounding urban fabric, attracting economic activity along the public spaces. The pedestrianised routes to the east of the Square, allow north-south movement between the stronger east-west corridors.
This all is set to change in the future with the adoption of Paul Kruger and Church Streets as pedestrian routes through the city. This will generate high volumes of pedestrian traffic permissible through the inner city in all directions which will feed into the surrounding fabric accordingly.

Fig.6_08.Aerial photo of site (left)
Fig.6_09.City model (below)

L   E   G   A   L   T E M P E R A T U R E R A N G E S

As an inner city site, there are few restrictions on the site other than those imposed on the design itself. Building regulations permit construction right to the boundary edge with medium rise height restriction other than what the geology and soil profile can provide support for. Space for access roads and escape routes require external frontage from site but will be addressed through the design.

S   L   O   P   E

There is very little slope on the site at present due to its use as a parking and access road. A 0,5m rise is all that exists, running from the south of the site upwards to the northern edge along the 70m length of the site.

L O C A L C L I M A T E

The densely built urban environment of the city produces high amounts of heat within the city due to long-wave re-radiation from all built structures. This leads to the heat island effect within the city which can result in uncomfortable local environments for pedestrians and an increased energy use within buildings for cooling. Shading provided by trees lining the streets help to combat this effect and give protection.

On a larger scale, Pretoria is situated within the Northern Steppe climactic zone.The following climatological information is the normal values and, according to World Meteorological Organization (WMO) prescripts, based on monthly averages for the 30-year period 1961 – 1990.

Month	Temperature (° C)				Precipitation		
	Highest Recorded	Average Daily Maximum	Average Daily Minimum	Lowest Recorded	Average Monthly (mm)	Average Number of days with >= 1mm	Highest 24 Hour Rainfall (mm)
January	36	29	18	8	136	14	160
February	36	28	17	11	75	11	95
March	35	27	16	6	82	10	84
April	33	24	12	3	51	7	72
May	29	22	8	-1	13	3	40
June	25	19	5	-6	7	1	32
July	26	20	5	-4	3	1	18
August	31	22	8	-1	6	2	15
September	34	26	12	2	22	3	43
October	36	27	14	4	71	9	108
November	36	27	16	7	98	12	67
December	35	28	17	7	110	15	50
Year	36	25	12	-6	674	87	160

Fig.6_10.Climatic data, S.A. Weather Bureau website

Summer months show an increase of 10° in comparison to winter month maximum temperatures. This range is increased to 13° with regards to minimum temperatures between the seasons.

Variations between the record lows and highs indicate the massive temperature scale fluctuations which can occur and must be considered during design. The greater the range however, the more difficult it becomes to provide control in a cost effective and sustainable manner. As a result, most buildings in the Pretoria area endure the fewer colder months, favouring an overall design approach which adapts to summer conditions.

C O M F O R T Z O N E S

To generate an atmosphere in which to work and concentrate remains the functional objective of a working structure. Complication arises through the varied types of activity however, experienced in this facility. Ranging from outdoor dining and practicals to internal exhibitions, seated office areas, lecture and meeting rooms and reading areas, all these activities require different control of the environment for best comfort.

Thus mechanical ventilation has been provided in the administrative areas of the building allowing regulation of both air temperature and rate of air flow. The form of the built structure with internalised atriums will shelter the central movement spaces to maintain a target temperature of 20°C – 23°C. According to season the comfort ranges will vary in accordance with external air temperatures and weather.

Humidity may only become problematic during thunderstorms where it will increase from the relatively unnoticeable norm.

D A Y L I G H T / S U N L I G H T

The *highveld* region in which Pretoria is situated receives high amounts of solar incidence with approximately 80% during the summer months, reduced to 67% in the winter months. Activity is thus high in outdoor areas through much of the year.

The sunlight is however characteristically aggressive with large amounts of UVA and UVB radiation which can lead to sunburn in reduced amounts of time when compared to regions in Europe. The quality of light is also very bright with glare being a significant factor to consider in design.

To combat the large heat gain associated with the high percentages of solar incidence in the area, building openings such as windows require special consideration with regards to sunlight in terms of fenestration, shading, plantings and deep recesses to avoid direct sunlight penetration.

Pretoria Solar Times and Angles							
Solar Times	06.00	08.00	10.00	12.00	14.00	16.00	18.00
Clock Times	06.18	08.18	10.18	12.18	14.18	16.18	18.18
Azimuth 21/12	112E	101E	91E	0	91W	101W	112W
Altitude 21/12	10	35	63	88	63	35	10
Azimuth 21/3 + 9	90E	76E	53E	0	53W	76W	90W
Altitude21/3 + 9	0	26	51	65	51	26	0
Azimuth 21/6	-	55E	34E	0	34W	55W	-
Altitude 21/6	-	14	32	40	32	14	-

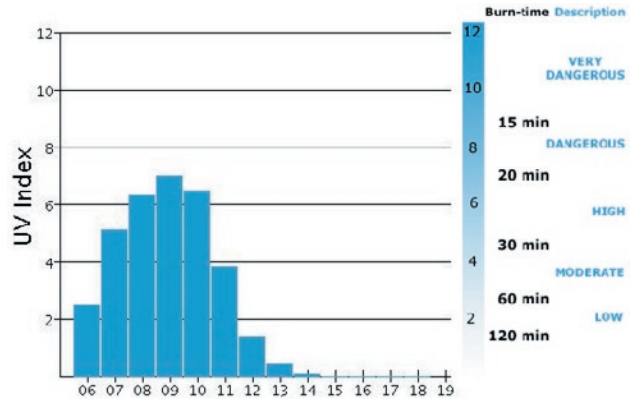Fig.6_11.Pretoria solar angles, Napier, A, 2000

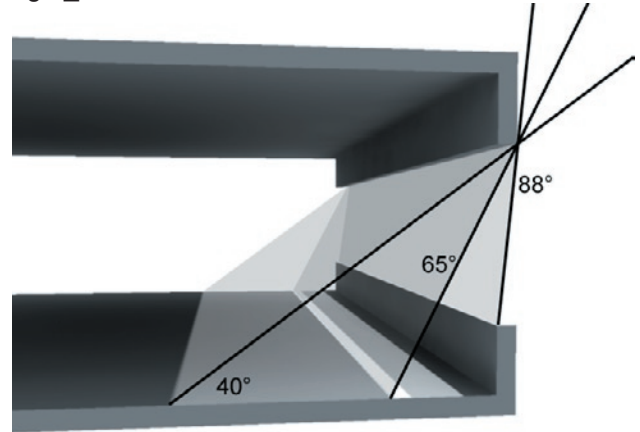Fig.6_12.UVB levels on 19/10/06, S.A. Weather Bureau

Fig.6_13.Solar solctice angles

W I N D

Summer winds originate between a north-easterly to south-easterly directions whilst winter winds are generally from a north westerly direction as identified in the diagram.

The density of the built fabric surrounding the site will during windy conditions develop channels of high speed air between structures. Summer months will see this movement focus mainly down Vermuelen Street

and the northern adjacent access road, providing cross ventilation through the building. Winter winds from the north-west will find a channel for movement down Paul Kruger Street. The eastern access road will be mostly sheltered from the wind being protected along its length on both sides. This narrow outdoor space will be suitable hence for outdoor activities and exhibitions.
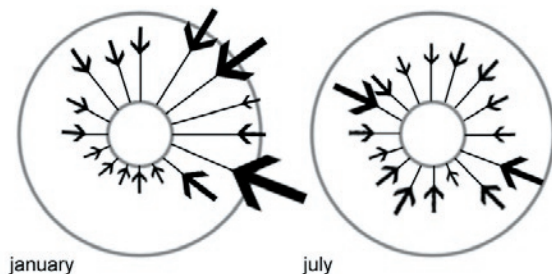

Fig.6_14.Wind roses

R A I N F A L L

Due to Pretoria's position on the plateau of the *highveld* of South Africa, rainfall is sporadic but concentrated. A result of the convection winds rising up into the atmosphere from ground level due to the extreme heating provided by the sun and in turn generating the massive thunderstorms the area is known for. High volume rains occur very quickly and dissipate equally swiftly during the summer months with continuous, gentler rains typical of the winter months.

H U M I D I T Y

Monthly humidity on average is 60% which can lead to discomfort in the higher temperatures of summer but are generally not regarded as a climactic problem which requires special attention.

V E G E T A T I O N

Known to the locals as the "jacaranda city", Pretoria is most famed for its wealth of jacaranda trees that create a purple blanket throughout the city in springtime from the flowering of the trees. Originally brought over from Brazil, the trees are exotic which presents a problem with the city council intent on the removal of all exotic species from the city. Yet the love the people hold for the trees has become an integral part of the identity of Pretoria.

Other trees found throughout the city are the *Acacia Karoo*, the locally known "fever trees" (*Acacia Xanthophloea*), *Rhus Lancea* thorn trees, *Ceretonia Seliqua* or the Carob tree and a multitude of other perennial trees.

Recent efforts to remove exotic specie populations from the area have resulted in large numbers of Blue Gum and Wattle trees being removed, leaving parts of the city uncomfortably open and unprotected. In addition, many of the large cycads lining routes around the University of Pretoria are dying due to plant disease and insect related decay. Concern with the maintenance of the city's planting is thus high and it is hoped that suitable action will be planned in the future to repopulate the city with trees.

G E O L O G Y

The geological profile of the soil on site will require a technical survey to be performed prior to the start of construction to obtain exact information on the load support provided by the soil. The following extract is taken from the TICP SDF describing the composition of the general soil profiles for the city region.

"Hekpoort Andesite which generally consists of an upper residual clay horizon followed at depth by jointed moderately weathered rock which is often water bearing. Below this there is hard competent rock.

Timeball Hill Shale which could contain subordinate quartzite layers. Excavatability may be hampered by these layers and at worst blasting would be necessary.

A combination of shale and diabase – Post Transvaal Cills.

Strubenkop shale with a small intrusion of Diabase – Post Transvaal Cills."

S I T E   H I S T O R Y

Paul Kruger Street remains one of the principle axes in the city, connecting the Pretoria Railway Station directly to Church Square; two of the largest public places in the city. Prior to 1938 however, Paul Kruger Street was known as Markstraat. It established the kernel of the city with its intersection with Church Street, creating Church Square which became the symbol of Pretoria's authority together with the positioning of highly influential government buildings and banks along its edges.

Vermuelen Street defines the northern most edge of Church Square. Development of the city over time has not resulted in the expected dense fabric in a westerly direction where the street is bounded by a *spruit*, since its establishment. Many empty sites remain on the western side, probably due to the single direction of traffic flow that moves east across the city which resulted from the termination of the street in the west. Many important buildings lie along this route such as the Head Offices of the Post Office, High Court Chambers, Palace of Justice and the Old Mutual Building on Church Square; all significant buildings and institutions.

A R C A D E   A N A L Y S I S

Due to the nature of the proposed design incorporating the design of an arcade, it was deemed proper to investigate the development of arcades in Pretoria; to understand the spatial and design approaches used in respect to Pretoria and the regional variations adopted in the city.

H I S T O R I C A L B A C K G R O U N D

The roots of arcade development as a built element can be found in Early Christian Roman and Islamic styles. The Roman development of the arch in building as a structural element generated increased heights and spans as had not been previously achieved in building. As early as the first and second centuries this is visible in projects such as Pont du Gard, France, the Pantheon, Rome and many of the early Christian basilicas such as the Old St. Peter's Basilica, also in Rome. The various configurations of arches as structural support elements resulted in not only the development of the arcade but also the groin vault, barrel vault and the dome utilized in these structures.
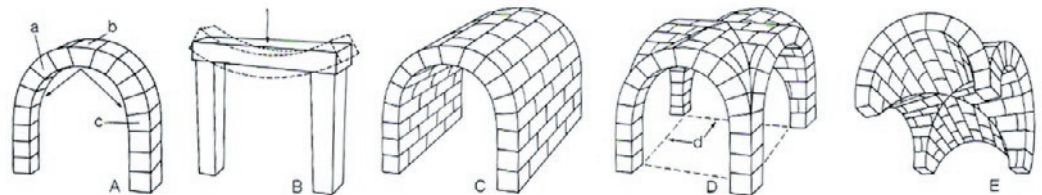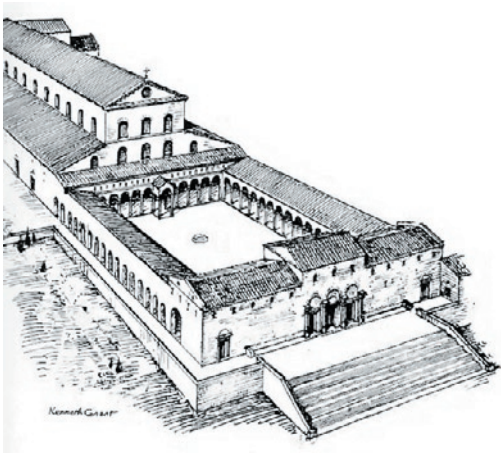
Fig.6_15.Arch development, Fleming, 1995

central nave. Similarly in the Islamic mosques of the fifth and sixth centuries, many series of arches and arcades were utilised to provide roof support to extremely large internal volumes which were required to accommodate the large numbers of worshippers at these mosques.

It is in the earlier mosque and basilica typologies that we find another distinct use of the arcade. In the Middle East, due to the extreme climate and temperature ranges experienced, responses in the building layout were required.
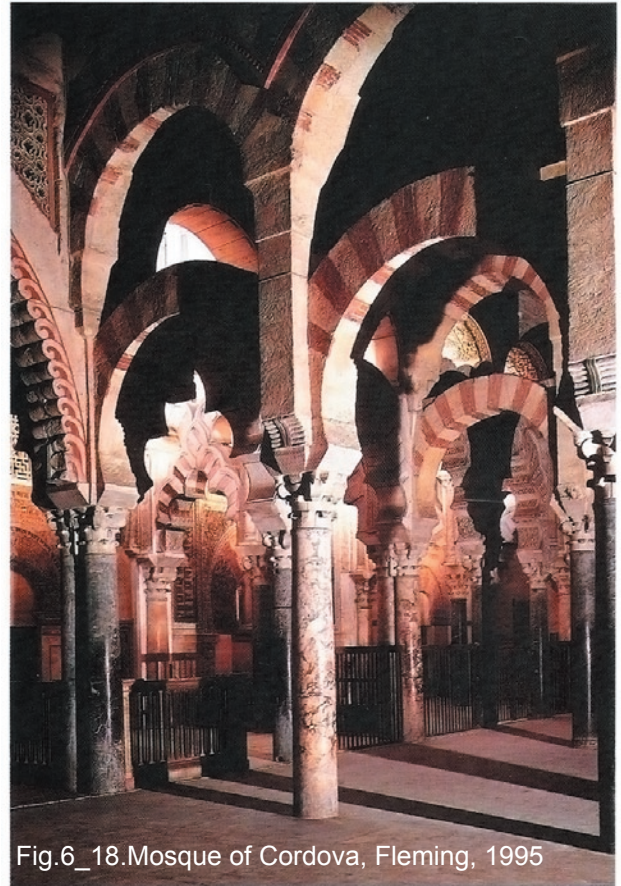

Fig.6_16.Pont du Gard, Fleming, 1995

Fig.6_17.Old St. Peters basilica, Fleming, 1995

Fig.6_18.Mosque of Cordova, Fleming, 1995

Particular interest must be paid to the manner in which the arcade informed the structural composition of the early Christian basilicas. To provide support to the roofs covering the large volumes of the churches, series of arcades were placed at positions along the churches length, forming outer aisles and the inner
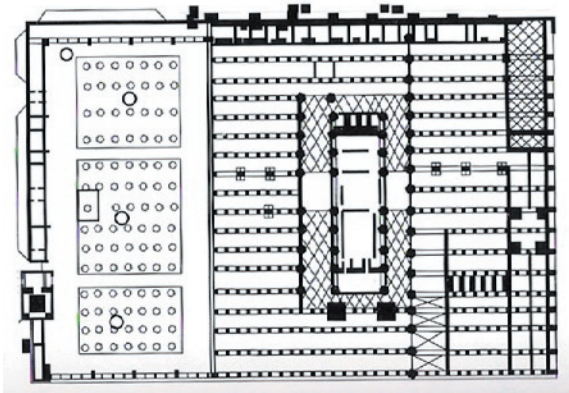
Fig.6_19.Mosque of Cordova plan, Fleming, 1995

Fig.6_20.Basilica section, Fleming, 1995

Fig.6_21.Basilica plan, Fleming, 1995

One of these responses was the shading and protection of rooms with outdoor corridors that prevented sunlight from directly penetrating the entrances to rooms. It is here that the arcade was used but no longer with the requirement of providing structural support. Here instead one identifies the beginnings of the use of the arcade in providing spatial organisation. By incorporating a permeable interface as the arcade between the outdoors, the shaded external corridor and the internal room, organisation of space use and typology is achieved. In the earlier Roman basilicas we see a similar occurrence, with arcade routes being placed around the internal courtyards of the basilicas. In both cases, the arcade has evolved into a spatial element, ordering the progression of space and allowing the activation and participation of the surroundings with the built structure.
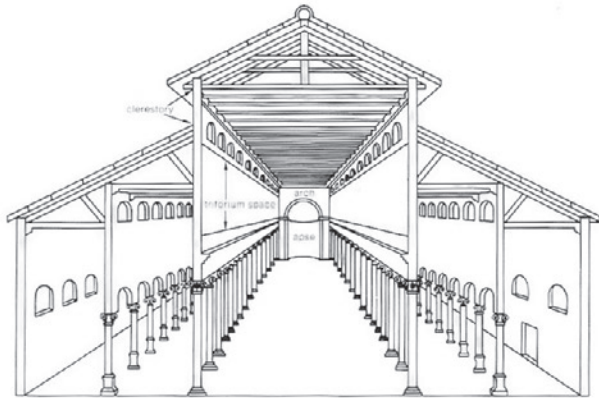

Fig.6_22.Cloister, Abbey of St. Trophine, Fleming, 1995
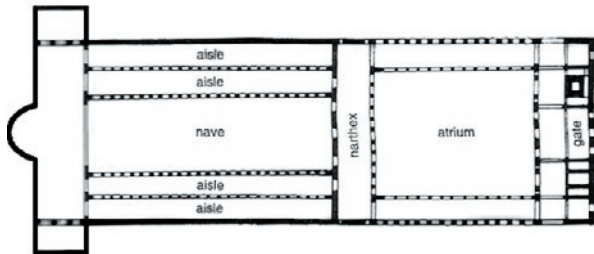
The predecessor to this spatial element is visable in the colonnaded porticos of earlier Roman and Greek architecture. Positioned at the edge of the podiums upon which these buildings were constructed, these

colonnades provided support for the roof, sheltering the immediate spaces around the structure. The construction technique of beam and column was limiting due to the short spans achievable with stone which required many supports along a lintels length. In comparison, arch construction provided support along the entire length of the lintel, supporting greater weights and spanning further as a result.

It is significant to the author to identify the changes, not only in the physical construction of the arch and the arcade, but also the manner in which the arcade is utilized as a built element. Initially used to provide intermediate support to roofs covering large volumes in a functional manner, arcades developed further into a spatial organizing element. The shift from internal to external arcade construction saw the attempt to activate space through the inclusion of the built elements surrounding the arcade. In other words, the arcade became a tool in bringing cohesion between the various elements of the built fabric and organising these elements along spatial spines.

Fig.6_24.Plan of the Pantheon, Fleming, 1995

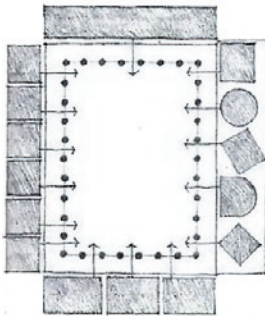Fig.6_25.Pantheon, Fleming, 1995

Fig.6_23.Activating space, Ching, 1996

Most modern examples of the arcade as a spatial system refer to the Isfahan Bazaar as its principle reference. Established at the beginning of the seventeenth century, the arcade's influence as
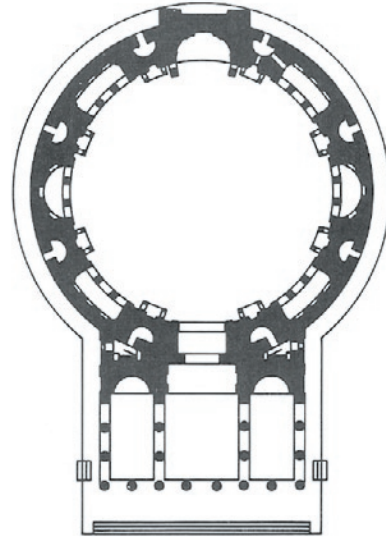
a commercial entity found great admirers in the Western traders to the Middle East. With the rise of consumerism and mass markets in the world, the bazaars translation into the arcade was quickly adapted into the cities of the West. It must be noted here however that this permutation of the arcade moved away from being a built element to one which embodied spatial and functional ideas. No longer merely forming interactive spaces and accessible routes, the arcade was now extended to serve economic and commercial demands.

The European context over the last few centuries however has seen another alteration to the idea of the arcade. Whilst the major arcades in European cities have been planned and integrated into the urban environment, the remainder have emerged through residual space. This refers to the spaces through the city that remain once development has occurred; the holes and tears in the urban fabric that remain due to any number of various planning or contextual issues. The need for covered passages of movement providing protection from the weather through the cities of Europe now sees the development of arcades occurring between buildings, between city blocks, attaching onto shopping malls and public transport routes. This adaptation works due to the spatial functionality of the arcade as an organising system but it is not the original nature of the arcades creation.
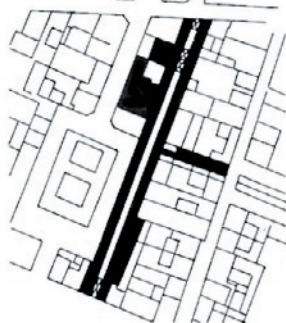

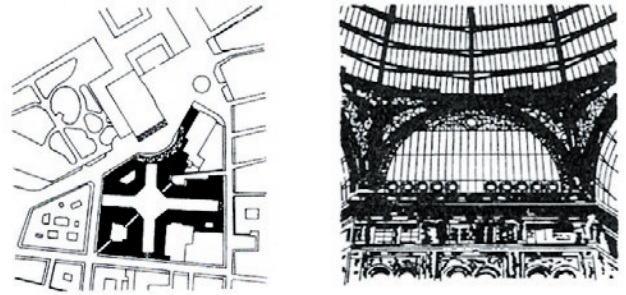
Fig.6_26.Passage Choiseul, Paris, Adler, 1999

Fig.6_27.Plan, Gallerie Umberto I, Naples, Adler, 1999

Fig.6_28.Perspective, Gallerie Umberto I, Adler, 1999

Fig.6_29.Hanse quarter shopping arcade, Hamburg, Adler, 1999

It is this third iteration of the arcade that holds interest pertinent to this project. Arcade development in the "seam space" of a city seeks to maximise the functionality and accessibility of our cities. In dense urban fabrics, it is the author's opinion that such a spatial element can renew and drastically reinvigorate the interaction between the people and their city, especially in a context where primary focus is given to vehicular routes.

P R E T O R I A C O N T E X T

Positioned in a valley between two parallel *berg* ranges in the north and south, Pretoria has an extremely favourable local climate for the majority of the year, receiving high amounts of solar radiation and experiencing temperatures over 30 degrees centigrade regularly during the summer. Low humidity promotes much outdoor activity with the exceptions during the fierce highveld thunderstorms in summer and the uncomfortable chill during the winter months.

As the capital of South Africa, Pretoria houses many of the governmental and official institutions of the country. With the outlying 'worker towns' and townships established during the apartheid era, there are a large number of people who move through the city on a daily basis. The development of Pretoria has thus accelerated to become the busy metropolis we know today.

Presently, the architecture in Pretoria finds its roots in neo-classical and renaissance styles with heavy influences from the modernist period, international style, art deco, art nouveau, brutalism and Brazilian architecture.

There is an extensive history of arcade use within Pretoria with many still in use today yet with the massive increases in vehicular numbers recently the governments focus remains on the traffic routes through the city and the further development of these paths of movement. As a result, the inner city movement networks continue to become more restricted, stopped at every turn as it were by the necessity for vehicular access.

U R B A N F A B R I C

The manner in which people experience the city, demands consideration during planning stages, for it becomes the basis upon which perceptions of the city are created. The reliance on vehicular transport in Pretoria and indeed South Africa as a whole, has furthered the development of the city in a particular direction

Arcades generate a particular kind of space in the city and a counterpart experience which differs from walking along a street or down an alley. However the functional performance of arcades is directly responsible for their incorporation into cities as they provide several key methods for maximising the potential of inner city sites.

- Access to interior of city block
  Since land values and rent are high in the inner city areas, it makes economic sense to maximise the portion of site dedicated to income. An arcade allows both serviceability and public movement to be incorporated into a single route, so allowing areas which would originally be designated as service roads to be developed.
- Public space through private property
  Arcade design today incorporates multiple shop units along its length. This extension of the public route across private boundary lines increases the accessibility of the city to the public. In addition it has the inherent benefit of increased pedestrian traffic past shops and places of business.
- Systems of access
  The linear nature of an arcade allows multiple points of access to the spaces along its edge. These points of access together give purpose and define the arcade as an element. Usually only bi-directional in nature, there are many examples of arcades which diverge in multiple directions to serve as access routes to buildings outside of the arcades primary

focus.
- Spatial organisation
  The hierarchy of spaces and spatial progression is a characteristic of arcades. It can be altered to provide a uniform manner of access to the individual spaces along its length or can place emphasis on certain points, such as those at intersections. By forming a central movement route, the arcade activates all buildings and built elements along its length to participate together in forming spatial relationships, rather then acting in seclusion with their immediate neighbouring structures.
- Connecting movement routes
  Pedestrian routes along the edges of streets are the primary conveyors of people through the city. City block lengths however can become barriers of movement if too long in length, requiring pedestrians to walk further than should be necessary. By connecting streets along their lengths with arcades, providing points of penetration through the built fabric of the city blocks, movement along the streets can be connected together to provide a far more accessible environment. Connecting arcades with each other can lead to the development of alternative pedestrian routes through the city, creating an exciting and characteristic experience of the city.

Recent revisions to the city's framework have revealed exciting new directions which the government is willing to implement. Primarily the pedestrianisation of Paul Kruger and Church Streets is of high interest as this begins to show the authorities conviction in attempting to bring residents back into the city by generating accessible environments in which people can live. The shift of importance from vehicular to pedestrian routes through the city will provide such environments.

A R C A D E S I N T H E C I T Y

Design for a specific context requires investigation and comparison. Certain techniques and solutions are specific to locations and the people there. The idea of fit as written about by Christopher Alexander in *Synthesis of Form*, demonstrates this.

"In the pursuit of urbanism, the ensemble which confronts us is the city and its habits. Here the human background which defines the need for new buildings, and the physical environment provided by the available sites, make a context for the form of the cities growth. In an extreme case of this kind, we may even speak of a culture itself as an ensemble in which the various fashions and artifacts which develop are slowly fitted to the rest"

Commenting not only on the manner of formation of urban environments but also the elements within a culture itself, it is understandable that the process of fit will restrain in part the design and build of a specific element with regards to its context.

Specifically with regards to the arcades in Pretoria, it was seen by the author as necessary that some investigation be done into those arcades already in use through the city to attempt at understanding the common characteristics in thinking between them in accordance with the idea of 'fitting' in the same manner to their environment. These characteristics and ideas can be adopted and built into the envisioned project to synthesize a fit between the project and the built environment.

Fig.6_30.Burlington arcade sign

B U R L I N G T O N A R C A D E

One of the most successful and distinctive arcades in the city, Burlington arcade was formed through the construction of Burlington House and the adjacent shopfronts. Completed in 1934, it was one of the first projects completed by Gordon Ellis in Pretoria, commissioned by the then largest property owners in Pretoria, the Bourke Trust and Estate Company.

Burlington Arcade embodies the Art Deco style with emphasis on the vertical elements of the building and the ornamentation. It reveals the ideas and expression of the time when it was created. The impact of modernism was yet to be felt fully in South Africa at this time yet the fore thoughts can be identified through the shopfront framing and glasswork fabrication of the arcade.

Several aspects serve to make Burlington arcade stand out from the others in the city. Firstly it has no covering roof but is open to the sky. Taking advantage of the excellent weather in Pretoria and the shading provided by the surrounding tall buildings allows this characteristic of this arcade to be successful. Secondly, with the lack of any covering over the arcade, the functional volume of the arcade is restricted to the ground floor but with multiple storey high facades on either side. This is to say that there are no mezzanine or first floor balcony levels along which movement is permitted. Thirdly the adjacent

Fig.6_31.South view in Burlington arcade

Fig.6_32.North view in Burlington arcade

building Burlington House, has its entrance facing onto the arcade. Indeed the entire one side of the arcade is Burlington House which has been designed to receive all its guests through the arcade. This most interesting system of access works extremely well by substituting the busy street edges for a more private and secluded entrance.

Burlington arcade connects not only the two perpendicular streets of Church and Bureau Lane but also the Noordvaal arcade, north across Church Street and Koedoe arcade in the south towards Pretorius Street. Effectively this creates a pedestrian route through the city block, isolated from the city road network for an alternative and intimate passage through the city fabric.

P O L L E Y S A R C A D E

The most famous arcade in Pretoria, Polleys Arcade acquired its name from Polleys Hotel which previously stood on the site. It is famed for its intricate marble off-cut tiling and mosaic patterning which lines the arcade floor and the large columns running along its length. Designed by Norman Eaton, a famed and prominent architect at the time, it is easily one of the largest arcades in Pretoria.

Fig.6_34.Polleys arcade

The arcade is double volume in height and is broken into two parts on different levels, joined together by wide curved concrete shell stairwells, also covered in the linear marble off-cuts which line the floors. This break in level is necessary to accommodate the site slope from Schoeman to Pretorius Streets. A skylight roof covers the arcade allowing sunlight to penetrate down between the buildings. Unfortunately however, since the SAPS headquarters are located adjacent to this arcade and the heightened security level required, all access points into the buildings have been isolated and protected. In addition the skylight roof has been replaced with corrugated sheeting. Hence, Polleys

Fig.6_33.Roof over Polleys arcade

arcade has become a mere shadow of its previous character, now lit with orange incandescent street lighting and resolved to become merely a corridor from Schoeman street to Pretorius street.

Fig.6_35.Stairway in Polleys arcade

Described as "one of the most exceptional urban spaces in Pretoria", Polleys Arcade is an excellent example of the kind of articulate and intimate alternative experience one as a pedestrian can have of the city.

K O E D O E A R C A D E

Dating also from 1934, Koedoe Arcade was one of the first and biggest commercial buildings erected by Johannes Rienk Burg, the founder of the firm Bild based in Pretoria. At present the arcade has been transformed to resemble more a shopping mall model than the traditional street arcade. The ground floor shops are entrenched in place beneath the mass of the seven storeys above them, rising upwards to form the walls of a large internal atrium. This atrium and the arcade are lit from above by a skylight as well as internal street lamp lighting.

Fig.6_36.Skylight in Koedoe arcade

Fig.6_37.Koedoe arcade

The solid massing surrounding the pedestrian and the lack of visibility to outside the structure can lead to an air of claustrophobia from within the arcade. Additionally the arcade only remains open to the public during business hours after which time, since the arcade is merely the ground floor of the larger overall structure, it is closed along with the building. This presents a problem when faced with reliability of use by the public which could lead to the potential failure of the arcade as a commercial system.

Fig.6_38.Van Erkom arcade

Fig.6_39.Van Erkom arcade sign

T H I B A U L T A N D V A N E R K O M A R C A D E S

These are two of the smaller and less impressive arcades in the city. Fully enclosed with natural lighting only penetrating from each end and electrical lighting along their lengths, these arcades reveal themselves as purely functional expressions of commercial activities. The arcades are suitably wide enough to avoid uncomfortable distances between strangers. Interestingly these arcade widths are a lot wider than Burlington arcade for instance. However with the open air design of Burlington arcade, the distance of enclosure does not read as significantly as it does in the Thibault and the Van Erkom arcades.

Both arcades utilise the same materials, finishes and store front assemblies which begin to read more of the modernist aesthetic of production in design. Yet in the Van Erkom arcade, running for twenty metres along its central length, one can find a beautifully ornate mosaic covering the entire eastern wall. Such an artwork again invites the more intimate relationship a pedestrian can have with the city and with the reduced speed of travel, the greater attention to detail becomes highly important in this design. Aside from this the arcades serve the shops along their edges as well as the occasional entrance to the office towers above. Whilst the character of the arcade may be lacking, the functional role of connecting paths of pedestrian movement is still achieved and serves to further expand the network of routes through the city offering a more intimate experience of the city.

A P P L I C A T I O N

Thus it can be seen how arcades operate on both a functional and spatial level in cities and that the certain characteristics identified in this contextual study can be applied in this project. These characteristics now require identification and explanation in order to show their application into the design of the project.

- Detail in design at pedestrian level
  With the slower rate of movement, pedestrians have a much larger time span to survey their environment than passengers in a vehicle. Thus any design encountered on the route is examined in far more detail and critically. To retain the viewers interest, the design should have detail which speaks to viewers at all levels; small, medium and large scale.

- Reliability of use
  It is unfortunate that some of the arcades in the city are closed at night. What could become vibrant social spaces are separated from the city to the detriment of the local environment and its people. Attempts to move through the urban fabric are frustrating when denied passage. Ultimately this can lead to a disinterest amongst pedestrians to attempt to use that route in the event that it is closed, negating the use for an arcade and leading to its abandonment as a public space.

- Natural lighting; skylights enhance character
  The excellent weather which Pretoria enjoys must be taken advantage of through any design, in particular a public space. The decision to enclose an arcade or not does not need to affect the final appearance of the space. Natural light can be brought into a space in a number of ways, be it skylights, clerestory windows or removal of the enclosure at parts. But there should be no delegation on the point whether sunlight should be allowed to light an arcade.

- Tactile materials
  On much the same point as detail in the design, material selection, whether it be extremely textured and colourful or smooth and reflective, must be chosen and constructed in such a way that it becomes a point of interest for pedestrians to look at or touch.

- Increased volumes
  Public spaces require that the design considers the maximum numbers of users at any one time which could possibly use the space. The psychology of the user inherent in the utilisation of that space must be considered when gauging the success of any project. With the large numbers of people arcades can convey, increasing the volume of the space aids to diminish any discomfort or phobias the users may experience.

- Building access
  One of the first examples of this as mentioned above was the Burlington arcade with access to Burlington House being provided from within the arcade. This organisation of access succinctly grades the changes from public to private space and can generate more intimate systems of access.

- Connect movement routes
  Enhancing the pedestrian networks through the city generates an alternative manner in which to experience the city. The increased permeability in the urban structure prevents pedestrians from walking uncomfortable distances around city blocks. The arcade

exists as a conduit for connecting public spaces yet allowing a gradation of spatial access to semi public and semi private.

- Relationship to external environment, natural environment

  Whilst arcades may be covered and built along both edges, there remains the need for the user to be able to locate themselves in relation to their environment. Physical restrictions on the passage of movement by built structures do not mean that visual continuity need suffer the same fate. Indeed the establishment of visual lines can eliminate the sense of physical enclosure.

With regards to this project, the facility comprises of two parts: the main building housing users and visitors to the Centre and the arcade which runs adjacent to it, providing access to both CUBE and the existing on-site structure. Both elements, whilst operating differently, have been designed and imbued with the spatial organising properties of an arcade. Initial design sketches sought to maintain the nature of the site as an individual entity but to be aware of its spatial nature in the context of the urban environment.

The fact remains that the site is the remainder of another project; the excess spatial off-cuts of a built project. This characteristic of the site in providing the 'ground' portion of a figure-ground relationship must not be ignored. In all truth, the project's design seeks to enhance this and communicate this idea to the people and the city fabric. At present the site operates as a passageway between structures for vehicles. And whilst the change of user and function of the space can be altered through the design, the nature of this space as a passageway through the fabric remains and is sought for in this design.

The arcade provided the spatial model to achieve

this. The building operates as a casing, providing a shell in which space is allowed to permeate through, upwards and outwards. The building operates through circulation and movement as its foremost goal. Examination of the Koedoe Arcade in Pretoria can begin to give an understanding of the manner in which the building can be manifest to contain and 'hold' space.

A R C A D E   A S   D E V I C E

In relation to the main building of CUBE, the designed arcade which runs adjacent to it, serves a similar project goal but in a slightly differ manner. Whilst both the arcade and the building exist as spatial conduits through the urban fabric, the arcade does not make distinctions between its users. The primary nature of an arcade is to provide a system of access to other elements.

Fig.6_40.Mosaic in Van Erkom arcade

In the theoretical chapter, distinction is given between the manner in which people experience the city, or rather the manner in which people experience buildings in the city. Two levels are identified: buildings experienced as periphery and buildings experienced as destination. This variation carries with it the two inherent variations in the people in the city: person as pedestrian or person as user. A pedestrian only remains as such until the destination is reached for then the shift from pedestrian to user in the person's profile occurs. It is this shift which is focussed upon in the design for it determines the manner in which, as previously mentioned, the buildings are experienced. Designing for this shift becomes a goal of the project's design in order to maximise the potential usage of CUBE.

To illustrate, functionally all three elements of the project work together in providing various configurations of access: the arcade, courtyard and building. The arcade provides a movement route for pedestrians with external destinations to pass through. Yet at the midpoint of the arcade, access into the central courtyard of the CUBE facility is provided, allowing interested parties to move into the realm of the facility. This then marks the shift from pedestrian to user where access into the buildings is then provided from the courtyard space. In the event of public gatherings or exhibitions in the courtyard space, the building can be locked, isolating movement to only the arcade and the courtyard. The courtyard can also be isolated from the arcade, preventing access into the facility should there be a need for a private function in the courtyard. In all configurations however, the arcade remains open for continued use by the public during all hours of the day. This important aspect goes to develop the public's reliance on the arcade as a passageway; a lesson learnt from the daily closing of the Koedoe Arcade.

It is in this manner, utilising the inherent characteristics of the arcade that the role and functions of the CUBE facility can be communicated and begin to create an awareness in the public of their city and their built environment through the ease of accessibility afforded the facility through the arcade as a spatial access element.

Fig.6_41.Existing on-site arcade, west

Fig.6_42.Existing on-site arcade, south