

CHAPTER 7 - CONCEPT DEVELOPMENT



CHAPTER 7: Concept Development

7.1 Introduction

This chapter seeks to portray the extensive design process that has been undertaken. It aims to explain and substantiate the various number of design decisions that were made during the process, as well as to provide insight into the final design proposal.

It involves the following sections:

- 7.2 Detailed Site Analysis
- 7.3 Building Form Options
- 7.4 Programme and Planning Development
- 7.5 Sketch Plan Development
- 7.6 Development of the Section
- 7.7 3Dimensional Concept Development
- 7.8 The Final Design
- 7.9 Diagrammatic Analysis
- 7.10 Conclusion

7.2 Detailed Site Analysis

A site specific analysis will now be carried out. It involves the study of the site itself. Although it is necessary to look at the broader context first, it is also of prime importance that the building responds to the context directly around it. By conducting this analysis, problems and opportunities not seen on a larger scale become evident, and can be dealt with in the design of the 'i-hub' building itself.

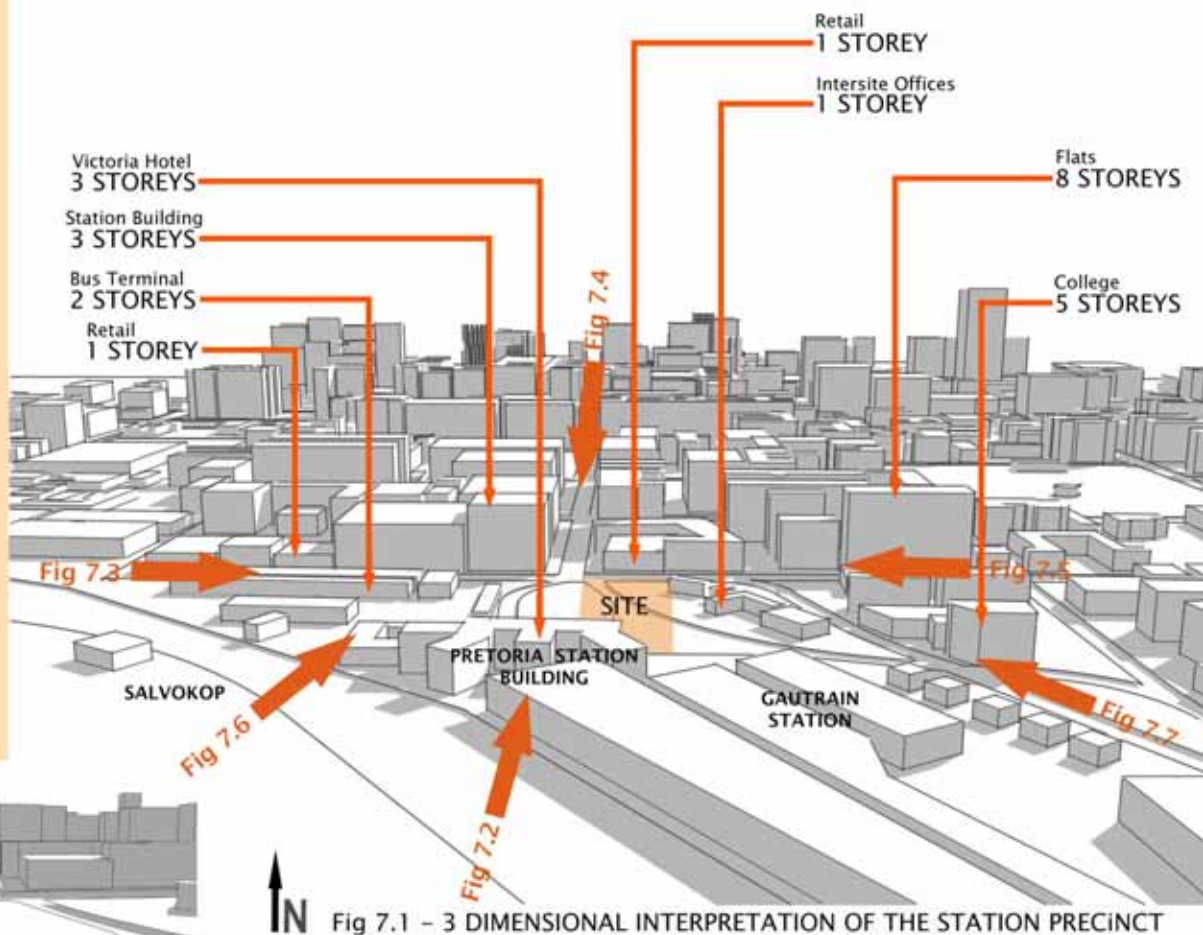


Fig 7.1 - 3 DIMENSIONAL INTERPRETATION OF THE STATION PRECINCT



Fig 7.2

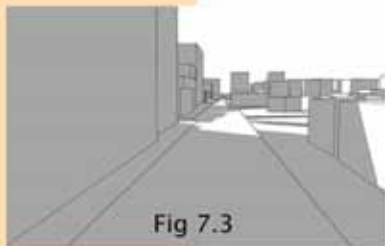


Fig 7.3

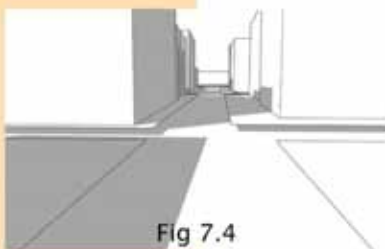


Fig 7.4

Fig 7.1 shows a view of the city from Salvokop towards the North. It is clear from this exploration that the urban fabric is less dense around the Pretoria Station area. Building heights become lower and open spaces flow into one another.

Fig 7.2 shows the space experienced when standing in the centre of the Historical Sunken Garden, facing North, looking up Paul Kruger Street. The Square is undefined, but the buildings along the street create a definite edge. A sense of direction and orientation is immediately apparent.

Fig 7.3 shows a view of Scheiding Street, looking East towards the Metro Police Station. The drop in scale between the inner city edge and the Pretoria Station site is evident. This street edge is less defined.

Fig 7.4 shows a view from the North, down Paul Kruger Street, towards the Station Building. Strong edge definition and directionality is present.

Spatial Analysis

The Pretoria Station context varies greatly, not only in function, but in the diversity of spaces that are created by the height of the buildings that flank the Historical Sunken Garden Square, and the proposed site itself. Fig 7.1 to Fig 7.7 show the kind of spaces found presently on site.

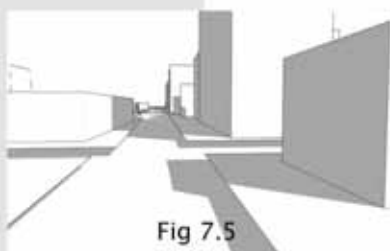


Fig 7.5

Fig 7.5 shows a view along Scheiding Street towards the West. The drop in scale between the flats to the North and the mixed-use buildings to the South is drastic.

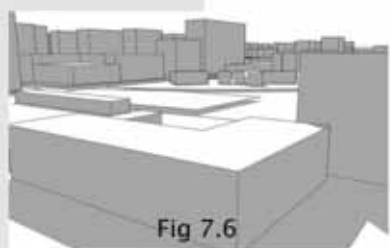


Fig 7.6

Fig 7.6 shows a view of the Historical Sunken Garden Square from the Salvokop pedestrian bridge. The increase in building scale from the Station Buildings to those of the inner city edge is apparent. This however, does afford a clear view of the city when entering it from the South.

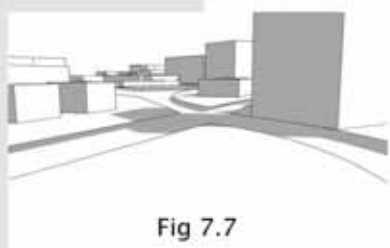


Fig 7.7

Fig 7.7 shows a view towards the site from Railway Street in the South-East. A gradual decrease in building height is evident from this angle.

It is evident already, that a hierarchy of spaces is present, particularly with regards to spaces of movement and pause. These spaces however, lack edge definition and are not functioning as well as they could. The proposed 'i-hub' building should seek to address the edge definition of the Historical Sunken Garden Square and Scheiding Street to the North. It can aid too, in defining the corner of the Paul Kruger Street and Scheiding Street intersection.

Lost Space

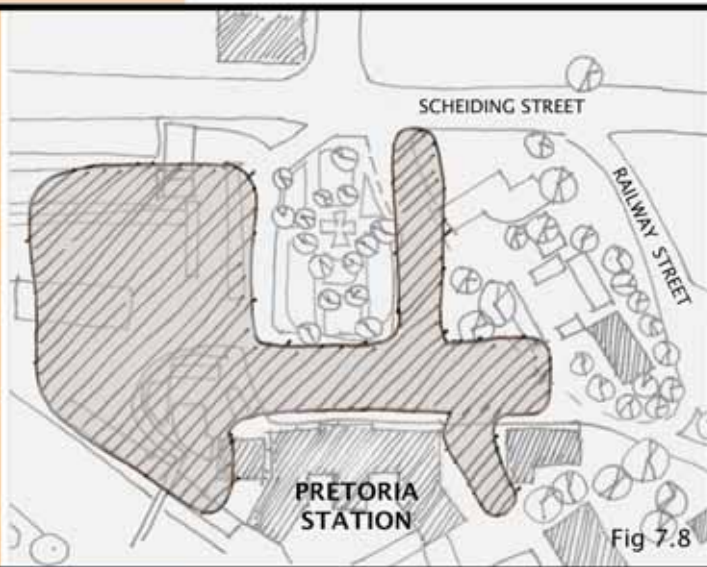


Fig 7.8 adjacent shows that much of the space on site is not used effectively. It is occupied by parked buses and a sea of vehicles that cause much congestion in front of the Station Building.

The removal of the Paul Kruger Street Extension results in a space that appears to segregate the site.

In order to optimise the use of space in this area and render it a pedestrian-friendly zone, much re-organisation will be necessary with regards to the modes of transport present on site.

Weak Edge Definition

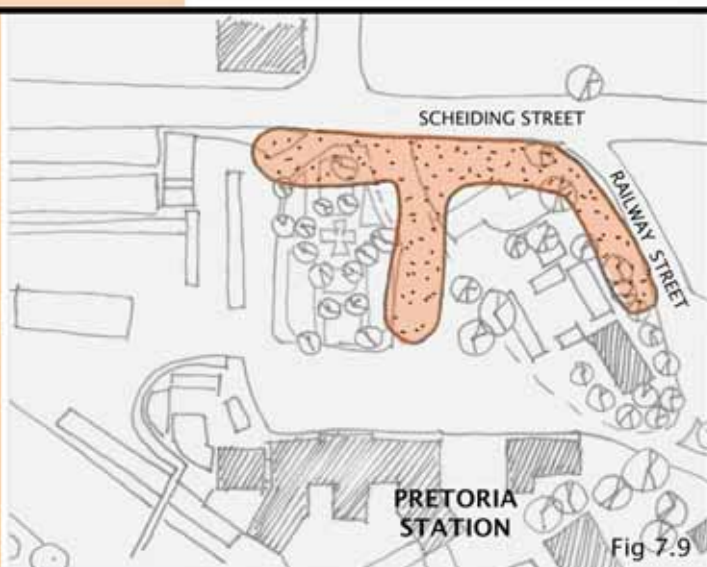


Fig 7.9 adjacent shows that the Historical Sunken Garden has become undefined. The Metro Police Building, along with its many carports is the cause of weak edge definition along Scheiding Street. This building causes the fragmentation of a space that could otherwise be beneficial to the Station site.

With regards to the Historical Sunken Garden itself, the Eastern edge of the garden lacks any definition, whereas the Western edge is defined in part by the informal trading stalls that have been established.

Circulation

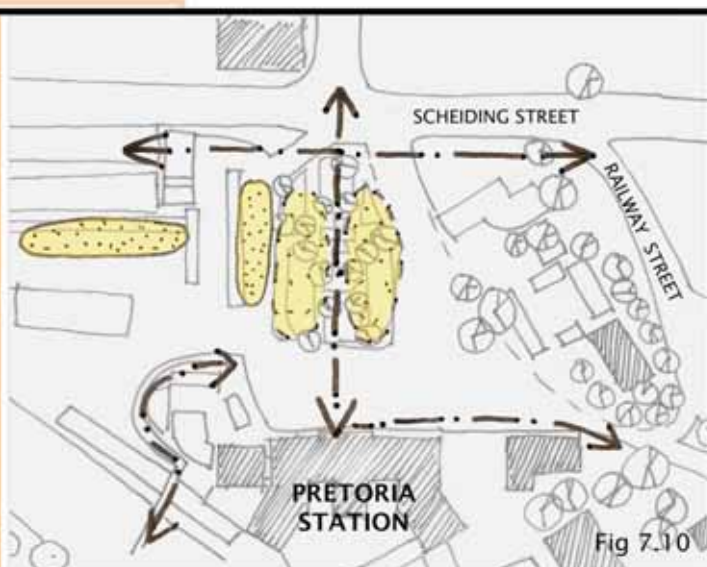


Fig 7.10 portrays the main circulation routes occurring between the Station Building and the city, along the pedestrian bridge to and from Salvokop and along the Scheiding Street Edge.

The main pause areas occur at the bus terminal to the West, where people are waiting to catch buses, at the informal trade stalls to the East of the Historical Sunken Garden and then within the Garden itself.

Movement is vast during peak hours. Pauses made by commuters are brief, as the environment is harsh and no amenities are provided to make their waiting periods more pleasant.

Access

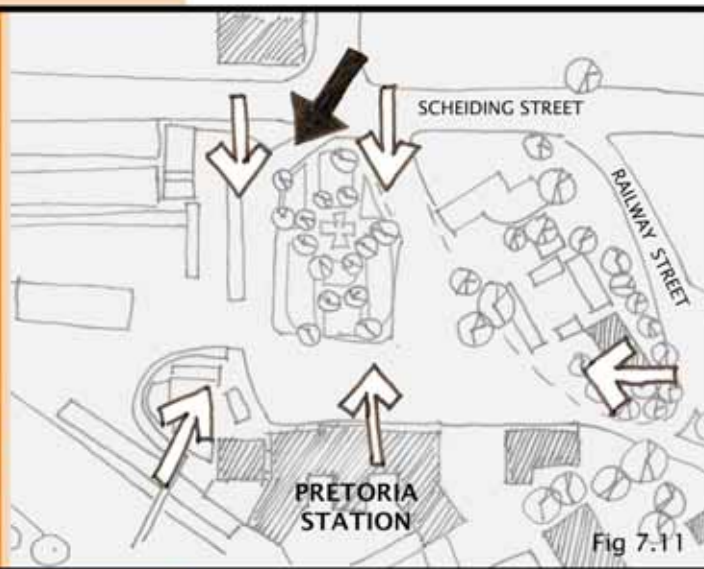
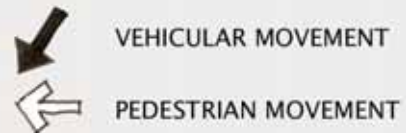


Fig 7.11 shows how vehicles may only enter the site from Scheiding Street. The Station area functions as a ring road with regards to vehicular movement. The exits are either North-East into Bosman Street (buses) or East into Railway Street (cars, taxis and buses). Pedestrians enter the site at various different points, but predominantly from the Station Building, the Salvokop Bridge and the City Centre.



Orientalation

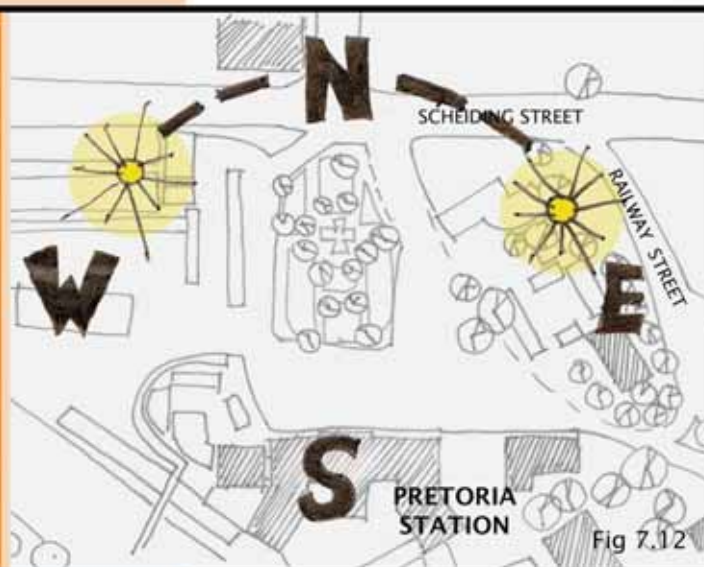


Fig 7.12 shows how the site is predominantly East-West facing, with a small portion exposed to the North.

Exposure to the Northern edge should be optimised. Any part of the building facing the East and West will need to be extensively protected from the harsh sun.

Micro Climate



Fig 7.13 reflects the existing trees found on site. It is evident that only the Eastern and Central parts of the site are shaded. Hard surfaces that are not shaded cause an increase in temperature throughout the day. This results in a harsh and uncomfortable micro climate. Commuters seek out shady spots in which to rest. These however are in adequate and potential users do not linger in this area when in transit.

Concept Development

7.3 Building Form Options

Building Form Option 1

Concept



Positives

Direct lines of sight are created between important points and, due to this, the historical fabric is linked. Open spaces in front of historical buildings enhance their importance. The building form that is generated as a result, makes the most of the Northern boundary of a site that orientation is unfavourably East-West.

Negatives

The proposed building competes with the existing Station Building and does not communicate with the intersection. Movement into the city from the GAUTRAIN is not apparent, as the legible city grid is disrupted by the building's form. The Historical Sunken Garden space 'leaks' into the Secondary spaces to the East. The Eastern Secondary space is segregated. A lack of edge definition is therefore present and the activation of the square edges may fail to occur.



Fig 7.14



Fig 7.15



Fig 7.16

Building Form Option 2



Concept

Concept Development



Fig 7.17



Fig 7.18



Fig 7.19

Positives

Negatives

The proposed building does not compete with the existing Station Building, but instead, communicates with the intersection. Direct lines of sight are created between important points and due to this, the historical fabric is linked. Open spaces in front of historical buildings enhance their importance. The Eastern Secondary space is now consolidated. Although the building form that is generated is largely orientated unfavourably towards the East and West, the Northern facade of the building makes the most of the Northern edge of the site. Movement into the city from the GAUTRAIN becomes apparent, as the legible city grid is visible due to the slight rotation of building's form.

The Historical Sunken Garden space 'leaks' into the Secondary spaces to the East. A lack of edge definition is therefore present and the activation of the square edges may fail to occur. The area between these two spaces may as a result, be underutilised.

Building Form Option 3

Concept



Positives

The proposed building does not compete with the existing Station Building, but instead, communicates with the intersection. Direct lines of sight are created between important points and due to this, the historical fabric is linked. Open spaces in front of historical buildings enhance their importance. The Eastern Secondary space is now consolidated. Although the building form that is generated is largely orientated unfavourably towards the East and West, the Northern facade of the building makes the most of the Northern edge of the site. Movement into the city from the GAUTRAIN becomes apparent, as the legible city grid is visible even though there is no rotation of the actual building itself. The straight, rectangular building form ensures the continuation of the city grid and the edge of the square now becomes more defined.



Fig 7.20



Fig 7.21

Negatives

The Historical Sunken Garden space still 'leaks' into the Secondary spaces to the East. A lack of edge definition, although more pronounced, is still present and the activation of the square edges may fail to occur. The area between these two spaces, although smaller and more defined, may still fail to be utilised as a result.



Fig 7.22

Building Form Option 4



Concept

Concept Development



Fig 7.23



Fig 7.24



Fig 7.25

Positives

Negatives

A combination of Options 2 and 3 – the proposed building does not compete with the existing Station Building, but instead, communicates with the intersection. Direct lines of sight are created between important points and due to this, the historical fabric is linked. Open spaces in front of historical buildings enhance their importance. Although the building form that is generated is still largely orientated unfavourably towards the East and West, the Northern facade of the building makes the most of the Northern edge of the site. Movement into the city from the GAUTRAIN becomes apparent, as the legible city grid is visible even though there is a slight rotation of the lower levels of the building.

The Historical Sunken Garden space still ‘leaks’ into the Secondary spaces to the East. A lack of edge definition, although more pronounced, is still present and the activation of the Square edges may fail to occur. The Eastern Secondary space is once again segregated. The area between these two spaces, is now less defined and may fail to be utilised.

Building Form Option 5

Concept



Fig 7.26



Fig 7.27

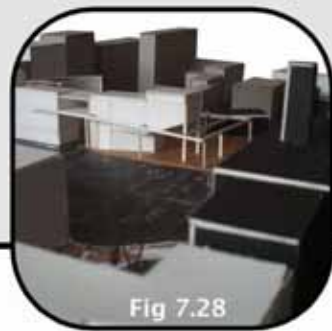


Fig 7.28

Positives

Possibly the most effective concept yet, the proposed elongated, rectangular building form, communicates with the intersection and links it to the Station Building without competing with it. An activation of the Square's edges is bound to occur. Although the building form generated is still largely orientated unfavourably towards the East and West, the Northern facade of the building makes the most of the Northern edge of the site. Direct lines of sight are created between important points and due to this, the historical fabric is linked. Open spaces in front of historical buildings enhance their importance. Clear edge definition ensures that the two squares are themselves, clearly defined themselves.

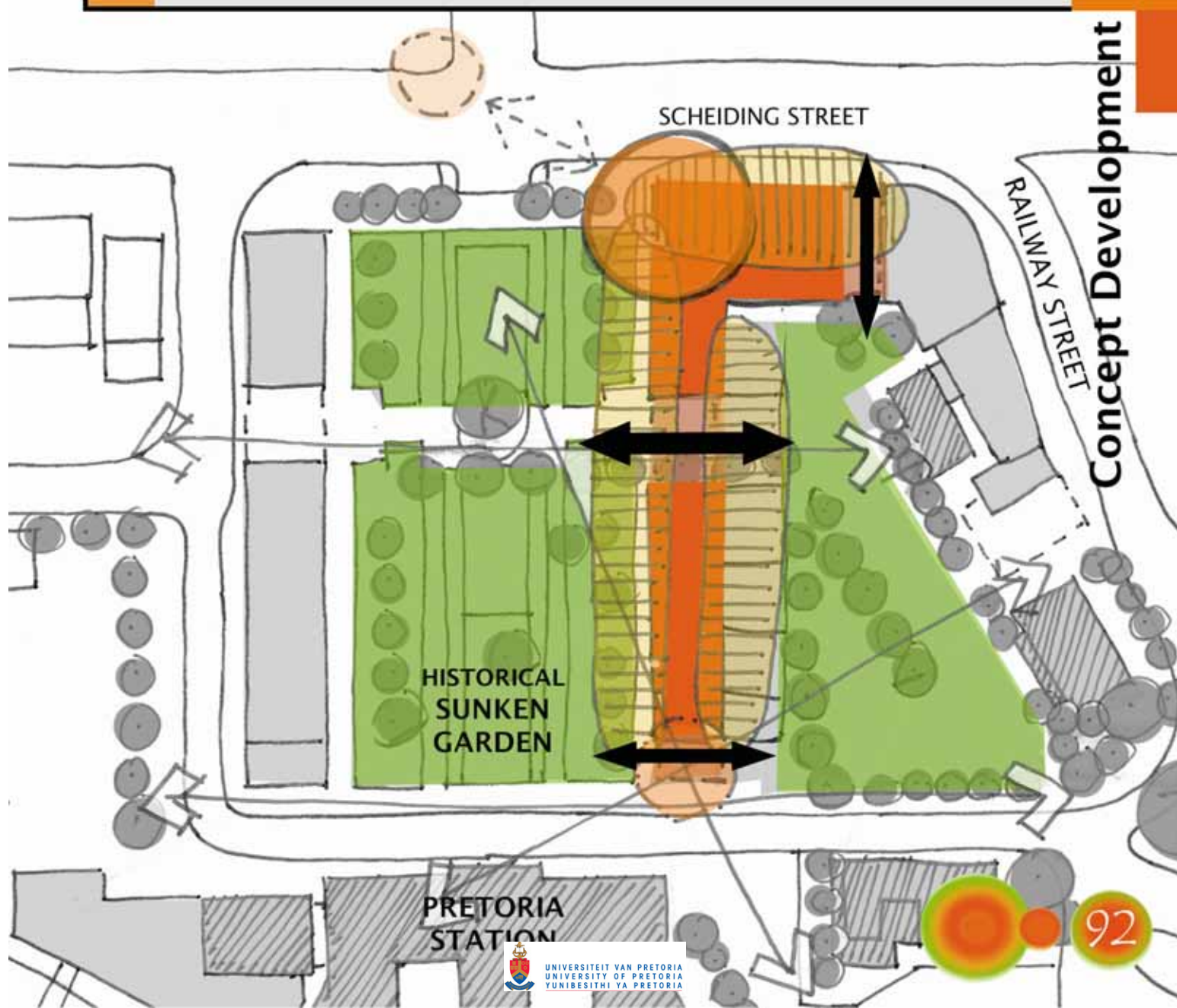
The Eastern Secondary space is thereby consolidated again and offers an opportunity to create a character different to that of the main Historical Sunken Garden Space. The area between these two spaces, is now defined by the higher levels of the building. The space below the building's higher levels becomes an area of transition and a possible gathering or meeting point. Movement into the city from the GAUTRAIN becomes apparent and takes place under and through the building. The legible city grid is visible and continuous due to the footprint of the building.

Conclusions

This building form below has been rendered the most effective. Two open public spaces have been well defined as a result of the placement of the proposed building. These spaces both have strong edge definition. The edges of the spaces and of the building are thereby activated and are deemed to become areas of heightened activity. The building edges will support activities occurring in the public spaces and visa versa. Movement is directly effective through and around the building so that the user is able to easily orientate themselves within their context. The opportunity has been identified to create strong definition at the corner of the building exposed to the intersection. This definition is to echo that created by the existing Victoria Hotel building opposite. A strong contrast between historical and contemporary is possible at this point. The Southern end of the proposed building becomes a transitional node so as not to compete with the grandeur of the main Station Building. The transitional character of this node acts to gradually introduce the GAUTRAIN commuter to the site and the city beyond.

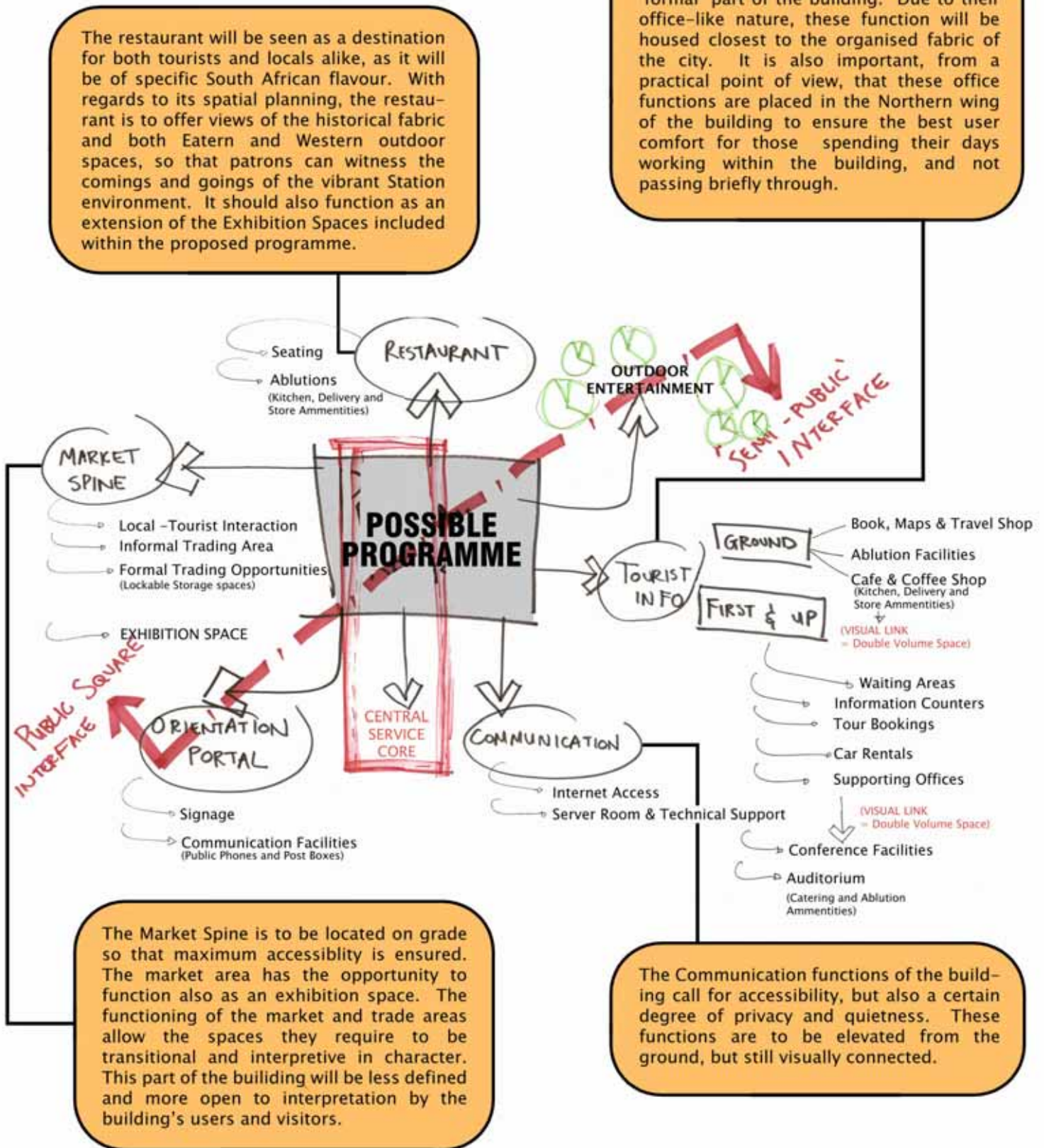
Two main challenges have been identified:

1. The East-West orientation of the building is not favourable, and
2. All the edges of the building interface with the public. There is no clear location for 'back-of-house' functions and services.



7.4 Programme and Planning Development

Fig 7.29 PROGRAMME DEVELOPMENT



In order to conceptualise the spatial arrangement of the building, it is necessary to define the functions that will be accommodated within, and to consider how these functions are to interact with the edges of the outdoor spaces adjacent, as well as with each other.

Fig 7.29 above shows a diagrammatic representation of the proposed functions to be housed within the building.

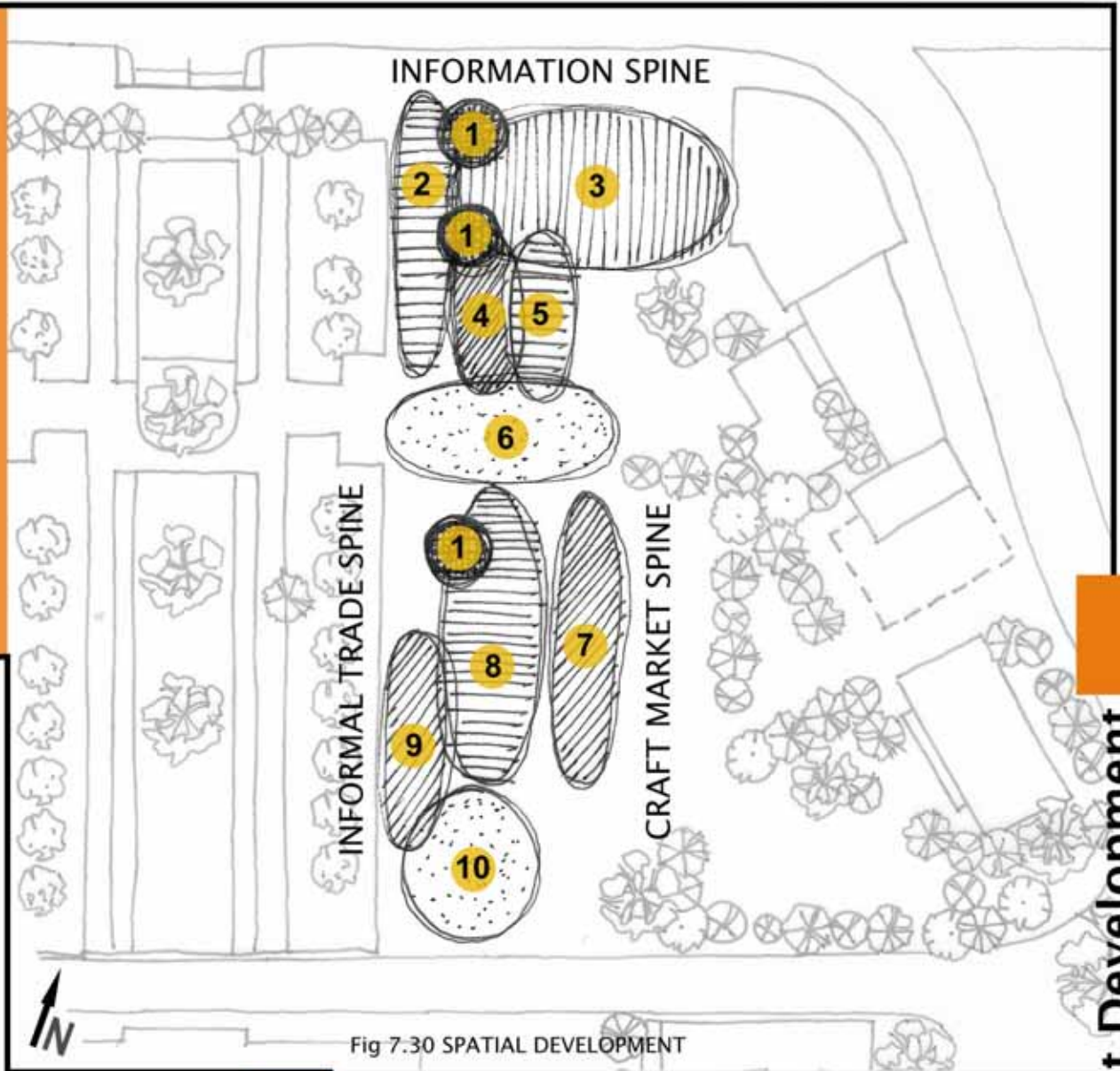


Fig 7.30 SPATIAL DEVELOPMENT



Fig 7.31 Showing a preliminary section through the Historical Sunken Garden



Fig 7.32 Showing a preliminary section through Scheiding Street

Legend

- 1 Vertical Circulation Cores.
- 2 Cafe overlooking the intersection (with views of the Victoria Hotel) and the Historical Sunken Garden.
- 3 Information wing housing the Book, Map and Travel Shop, smaller coffee shop, Information Counters and supporting office facilities. This Northern wing responds to the Scheiding Street city edge.
- 4 Communication and Conference Facilities, with buffer zones on each side.
- 5 Service core (Ablutions, Kitchens and Service Ducts)
- 6 The Auditorium forms a link between the North and South of the building and allows pedestrian movement on the ground.
- 7 The Formal Craft Market brings vibrancy to the Secondary Square.
- 8 The Restaurant Area interfaces on both sides.
- 9 The Informal Trading Spine fronts onto the Historical Sunken Garden where the bulk of commuters pass by.
- 10 The transitional Gathering Space introduces the fabric of the building and serves as an entrance to the Craft Market from the South.

Fig 7.33 Ground Floor Plan

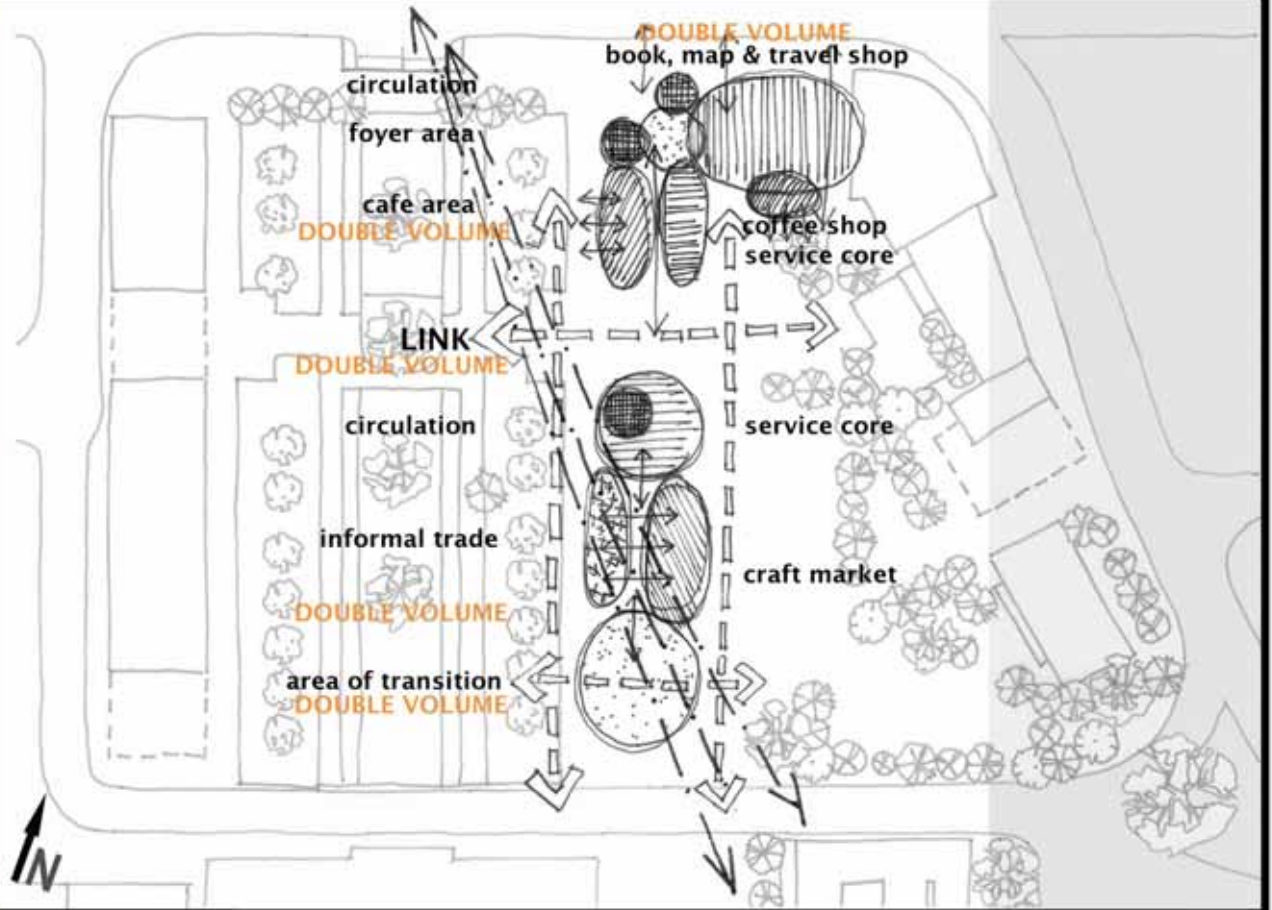


Fig 7.34 First Floor Plan

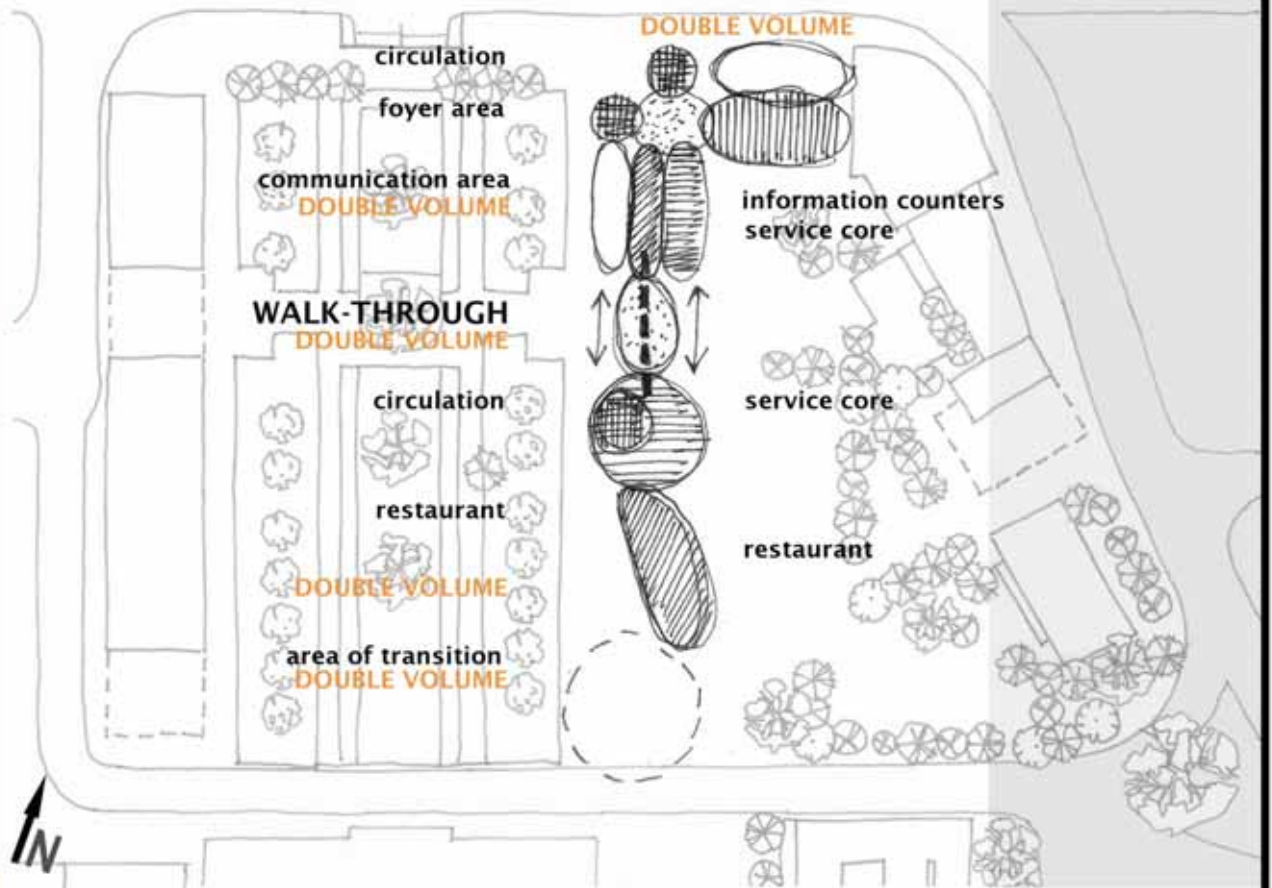


Fig 7.35 Second Floor Plan

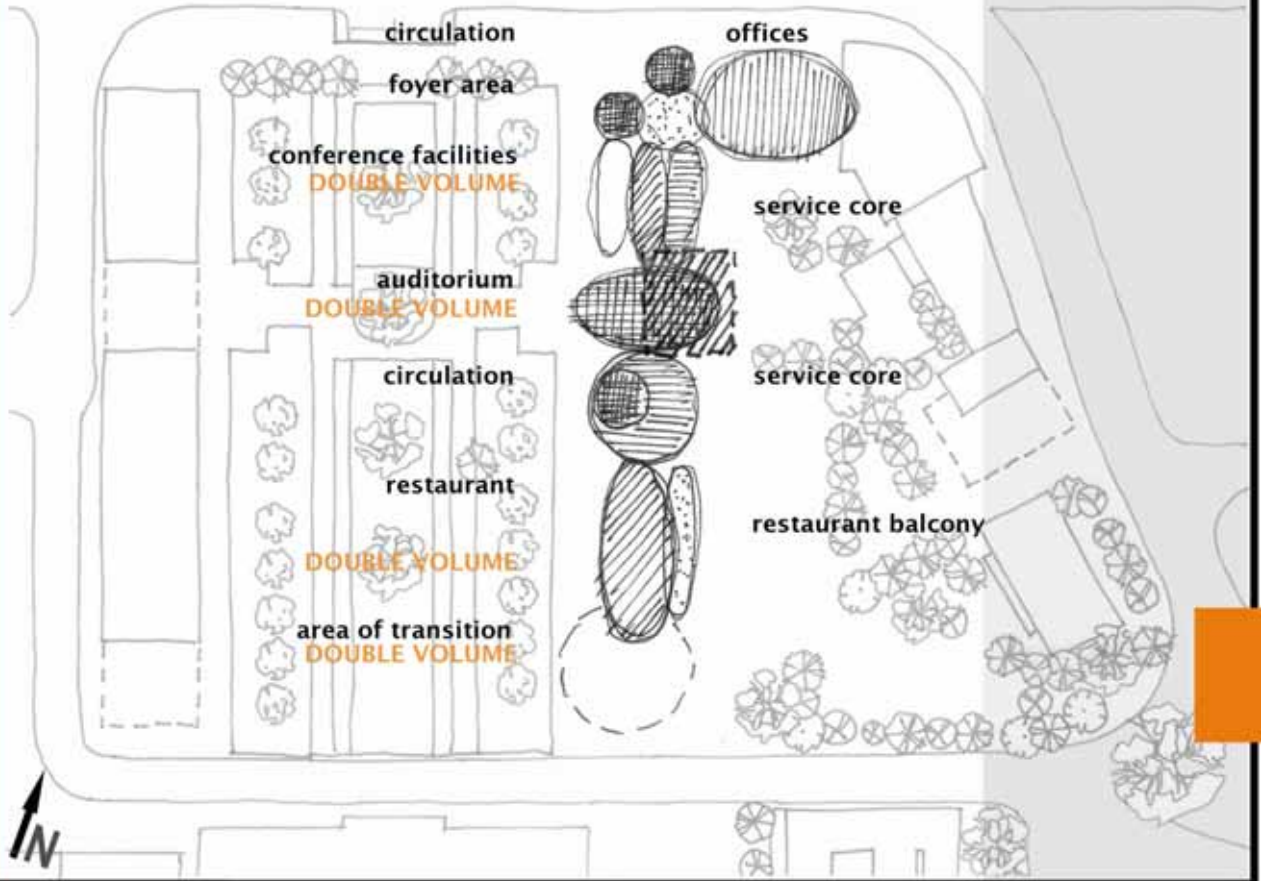
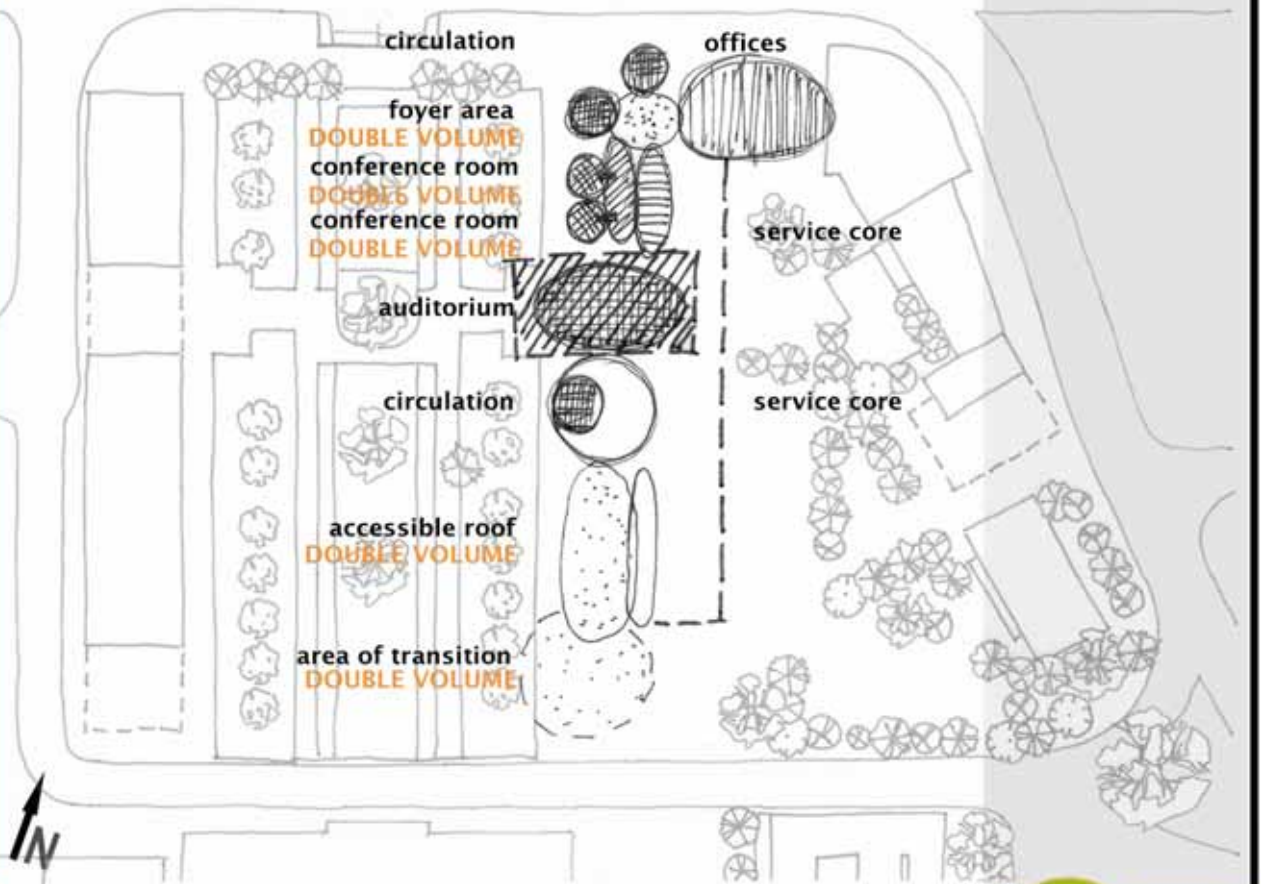


Fig 7.36 Third Floor Plan



BASEMENT LEVEL

NORTHERN SECTION STORES	Luggage Store	22m ²	
	Coffee Shop Dry Store	12.4m ²	
	Book Shop Store	10.8m ²	
	Cafe Dry Store	18m ²	
	Lift Lobby	12.4m ²	
	TOTAL:	75.6m ²	
ADMINISTRATION	Parking & Security	22m ²	
DELIVERIES	Yard	62m ²	
PLANT ROOMS	Telkom Room	9m ²	
	Electrical Room	9m ²	
	Transformer	36m ²	
	LV/DB Room	12m ²	
	Standby Generator	17.5m ²	
	TOTAL:	83.5m ²	
SOUTHERN SECTION FOYER AREA	Central Space	82m ²	
	Lift Lobby	4.5m ²	
	TOTAL:	86.5m ²	
STAFF ABLUTION FACILITIES	Female Ablutions	22m ²	
	Male Ablutions	22m ²	
	Passages	27m ²	
	TOTAL:	71m ²	
ADMINISTRATION	Security	4.5m ²	
SECURITY	Cubicle	4.6m ²	
WATER COLLECTION TANKS	Floor Area	30m ²	
	GRAND TOTAL:	439.7m ²	

GROUND FLOOR LEVEL

NORTHERN SECTION - 'CAFE/SHOP SPINE' COFFEE SHOP	Store Area	5.6m ²	
	Service & Display Area	22.6m ²	
	Indoor Seating Space	45.8m ²	
	Outdoor Seating Space	41m ²	
	TOTAL:	115m ²	
BOOK & MAP SHOP	Floor Area	302m ²	
	Lift Lobby	5.3m ²	
	TOTAL:	307.3m ²	
FOYER AREA & EXHIBITION SPACE	Central Space	TOTAL: 200m ²	
CAFE	Cold Store	5m ²	
	Kitchen	26.7m ²	
	Ammenities	13.8m ²	
	Circulation Space	118.7m ²	
	Indoor Seating Space	126m ²	
	Outdoor Seating Space	61.5m ²	
	TOTAL:	351.7m ²	
ABLUTION FACILITIES	Female Ablutions	17m ²	
	Male Ablutions	17m ²	
	Disabled Facility	5.7m ²	
	TOTAL:	39.7m ²	
SOUTHERN SECTION - CRAFT MARKET HUB FOYER AREA	Central Space	158m ²	
	Lift Lobby	4.5m ²	
	TOTAL:	162.5m ²	
ABLUTION FACILITIES	Female Ablutions	10m ²	
	Male Ablutions	10.5m ²	
	Disabled Facility	5.8m ²	
	TOTAL:	26.3m ²	
BANKING FACILITY	ATM	TOTAL: 4.5m ²	
SECURITY	Cubicle	TOTAL: 4.6m ²	
INFORMAL TRADE & PERFORMANCE SPACE	Interpretive Space	200m ²	
	Circulation Space	170m ²	
	TOTAL:	370m ²	
FORMAL CRAFT MARKET	Stall 1	19m ²	
	Stall 2	18.3m ²	
	Stall 3	17.7m ²	
	Stall 4	17m ²	
	Stall 5	16.2m ²	
	Stall 6	15.4m ²	
	Stall 7	7.4m ²	
	TOTAL:	111m ²	
GATHERING SPACE	Interpretive	TOTAL: 205m ²	
	GRAND TOTAL:	1147.8m ²	

FIRST FLOOR LEVEL

NORTHERN SECTION - COMMUNICATION & INFORMATION HUB VISITOR INFORMATION	Counters	186m ²	
	Reading/Discussion Area	41m ²	
	Balcony	19m ²	
	Small Kitchen	12.4m ²	
	TOTAL:	258.4m ²	
FOYER AREA & EXHIBITION SPACE	Central Space	170m ²	
	Waiting Area	15m ²	
	Lift Lobby	5.3m ²	
	TOTAL:	190.3m ²	
INTERNET & COMMUNICATION FACILITIES	Floor Space	175m ²	
	Mezzanine Level	35.3m ²	
	Technical Support	19.8m ²	
	Server Room	3.6m ²	
	Kitchen/Coffee Station	10.5m ²	
	TOTAL:	244.2m ²	
ABLUTION FACILITIES	Female Ablutions	12.3m ²	
	Male Ablutions	11.7m ²	
	TOTAL:	24m ²	
WALK-THROUGH BETWEEN HUBS		TOTAL: 107m ²	
SOUTHERN SECTION - RESTAURANT HUB FOYER AREA	Central Space	82m ²	
	Lift Lobby	4.5m ²	
	TOTAL:	86.5m ²	
RESTAURANT	Bar Area 1	36.6m ²	
	Balcony	33m ²	
	Kitchen Stores	7.9m ²	
	Kitchen	55.6m ²	
	Waiter's Ammenities	19.4m ²	
	Cleaner's Store	4.6m ²	
	Floor Area	190m ²	
	Performance Space	61.3m ²	
	TOTAL:	237.4m ²	
	GRAND TOTAL:	1147.8m ²	

Fig 7.37

Accommodation Schedule

The building's proposed programme centres around:

A Craft Market spine, Communication and Conference facilities, Relaxation amenities, as well as an Information and Service interface.

The Craft Market spine includes spaces that accommodate craftsman and informal traders, as well as an exhibition space for local talent and relevant exhibitions that help to inform the public.

The Communication and Conference facilities house functions such as public telephones, post boxes, meeting rooms and an internet café.

The Relaxation amenities consist of a restaurant, of South African flavour, a cafe and a coffee shop that are all positioned so as to provide opportunities to observe and engage in outdoor activities.

The Information and Service Interface offers the tourist the opportunity to source information, book tickets, tours and accommodation, as well as orientate themselves before continuing on their journey.

SECOND FLOOR LEVEL

NORTHERN SECTION - CONFERENCE FACILITIES & OFFICE HUB		
OFFICES	Office Space	240m ²
	Walkways	86.3m ²
	Balcony	30.8m ²
	Reception Area	15m ²
	Waiting Area	13.2m ²
	Boardroom	38.7m ²
	Balcony 1	13m ²
	Meeting Room	27.8m ²
	Balcony 2	8m ²
	Small Kitchen	12.4m ²
	TOTAL:	472.8m²
FOYER AREA & EXHIBITION SPACE		
	Central Space	170m ²
	Waiting Area	15m ²
	Lift Lobby	5.3m ²
	TOTAL:	190.3m²
CONFERENCE FACILITIES		
	Floor Space	175m ²
	Mezzanine Level	35.3m ²
	Administration	19.8m ²
	Auditorium Entrance	10m ²
	TOTAL:	240.1m²
ABLUTION FACILITIES		
	Female Ablutions	17m ²
	Male Ablutions	13m ²
	TOTAL:	30m²
LINK - AUDITORIUM		
	Entrance Bridges	10.2m ²
	Speaker's Domain	40m ²
	Projection Room	7.6m ²
	Store	2.1m ²
	TOTAL:	59.9m²
SOUTHERN SECTION - RESTAURANT HUB		
FOYER AREA		
	Central Space	106m ²
	Auditorium Entrance	13.7m ²
	Balcony 2	6.8m ²
	Lift Lobby	4.5m ²
	TOTAL:	131m²
ABLUTION FACILITIES		
	Female Ablutions	17.2m ²
	Male Ablutions	15.6m ²
	TOTAL:	32.8m²
RESTAURANT		
	Bar Area 2	21m ²
	Balcony 1	15.2m ²
	Waiter's Amenities	20.3m ²
	Cleaner's Store	4.6m ²
	Floor Area	372m ²
	Balcony 3	60m ²
	Terrace	60.7m ²
	Lounge Area 1	27.4m ²
	TOTAL:	581.2m²
	GRAND TOTAL:	1738.1m²

THIRD FLOOR LEVEL

NORTHERN SECTION - CONFERENCE FACILITIES & OFFICE HUB		
OFFICES	Office Space	240m ²
	Walkways	86.3m ²
	Balcony	30.8m ²
	Reception Area	15m ²
	Waiting Area	13.2m ²
	Meeting Room	38.7m ²
	Balcony 1	13m ²
	Boardroom	27.8m ²
	Balcony 2	8m ²
	Small Kitchen	12.4m ²
	TOTAL:	472.8m²
FOYER AREA & EXHIBITION SPACE		
	Central Space	170m ²
	Waiting Area	15m ²
	Lift Lobby	5.3m ²
	TOTAL:	190.3m²
CONFERENCE FACILITIES		
	Floor Space	175m ²
	Administration	19.8m ²
	Conference Room 1	26.2m ²
	Conference Room 2	26.2m ²
	Kitchen	10m ²
	Auditorium Entrance	10.4m ²
	TOTAL:	109.6m²
ABLUTION FACILITIES		
	Female Ablutions	17m ²
	Male Ablutions	13m ²
	TOTAL:	30m²
LINK - AUDITORIUM		
	Seating & Movement	155m ²
	Entrance Bridges	10.2m ²
	Discussion Room 1	23.3m ²
	Discussion Room 2	23.3m ²
	TOTAL:	211.8m²
SOUTHERN SECTION - RESTAURANT HUB & ACCESSIBLE ROOF		
FOYER AREA		
	Central Space	106m ²
	Auditorium Entrance	15.6m ²
	Lift Lobby	4.5m ²
	TOTAL:	126.1m²
RESTAURANT		
	Balcony	22.3m ²
	Lounge Area 2	22m ²
	Waiter's Amenities	7.3m ²
	Store	12.2m ²
	Cleaner's Store	4.6m ²
	TOTAL:	190m²
ABLUTION FACILITIES		
	Female Ablutions	17m ²
	Male Ablutions	16.2m ²
	TOTAL:	33.2m²
ACCESSIBLE ROOF AREA		
	TOTAL:	390m²
	GRAND TOTAL:	1753.8m²

These four interfaces, bearing testimony to the art and culture of the Pretoria, come together in the building's public atrium spaces. The programme of the building is aimed primarily at the tourist, but the functions also cater for the daily commuter, making the building more sustainable and encouraging interaction between locals and foreigners.

According to the SABS 0400-1990, Table 1 - Occupancy or Building Classification (pp. 34), the various different occupancy classes are defined as follows:

- A1 ENTERTAINMENT AND PUBLIC ASSEMBLY
- A2 THEATRICAL AND INDOOR SPORT
- C1 EXHIBITION HALL
- D4 PLANT ROOM
- F2 SMALL SHOP
- G1 OFFICES
- J3 LOW RISK STORAGE
- J4: PARKING GARAGE

These occupancy classes serve as a guide when calculating the design population for which adequate ablution facilities and parking bays are

to be provided so as to ensure an urban environment that caters for the direct needs of its users. These calculations are important to incorporate in the development of the building design as the requirements directly influence the spatial planning of the building.

Following this, according to table 2 - Design Population (SABS 0400-1990 pp 35), the below figures should be applied:

- A1 & A2: A population of the number of fixed seats or 1 person per m² if there are no fixed seats.
- C1 & F2: 1 person per 10m²
- G1: 1 person per 15m²
- J3 & J4: 1 person per 50m²

The number of sanitary fixtures needed in the building is calculated in accordance with SABS 0400-1990 Part OO, Table 6.

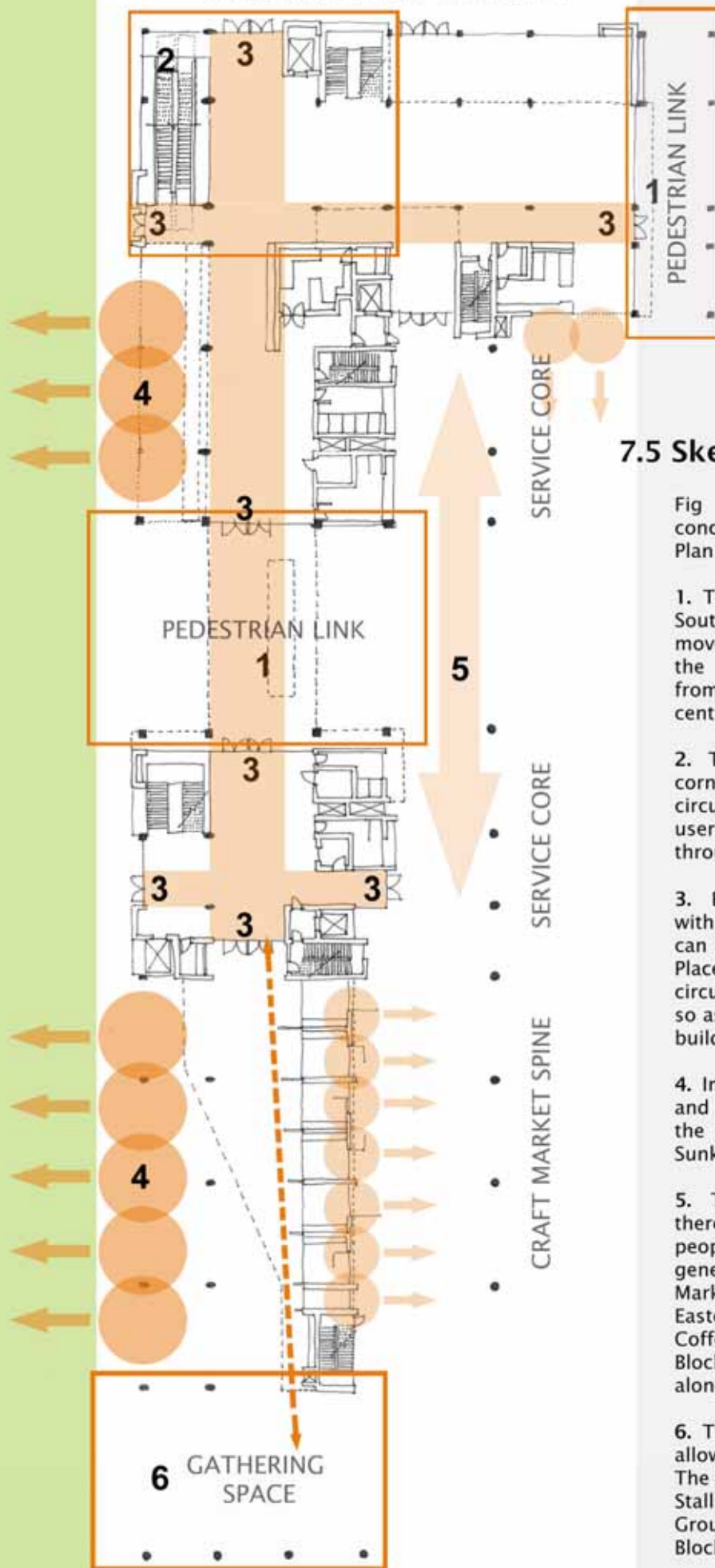
SCHEIDING STREET SHOP SPINE

CIRCULATION CORE

CAFE SPINE

CIRCULATION CORE

INFORMAL TRADING SPINE



7.5 Sketch Plan Development

Fig 7.38 adjacent shows important concepts relating to the Ground Floor Plan Development. These include:

1. The building is cut into Northern and Southern blocks to allow free pedestrian movement through the site. A link to the city divides the 'i-hub' building from the proposed new building adjacent.

2. The highly visible North-Western corner of the building is defined by circulation elements ensuring that the user is able to understand how to move through the building before entering.

3. Entrances form perpendicular axes with one another so that the building can be transversed easily in its entirety. Places of entry are also defined by circulation shafts, mechanics exposed, so as to allow the onlooker views of the building's moving parts.

4. Interactive functions such as the Cafe and Informal Trading Spine front onto the more prominent, busier, Historical Sunken Garden Square.

5. The Eastern facade of the building therefore becomes directive, guiding people North towards the city, via a generous covered walkway.. The Craft Market Spine to the South, activates the Eastern Secondary Square, as does the Coffee Shop in the 'i-hub's Northern Block. Service Cores are thus located along this facade.

6. The Southern point of the building allows for transition and interpretation. The slight diagonal of the Craft Market's Stall walls guides the user into the Ground Floor Foyer of the Southern Block.

SKETCH PLAN DEVELOPMENT

GROUND FLOOR PLAN

Scale 1:500



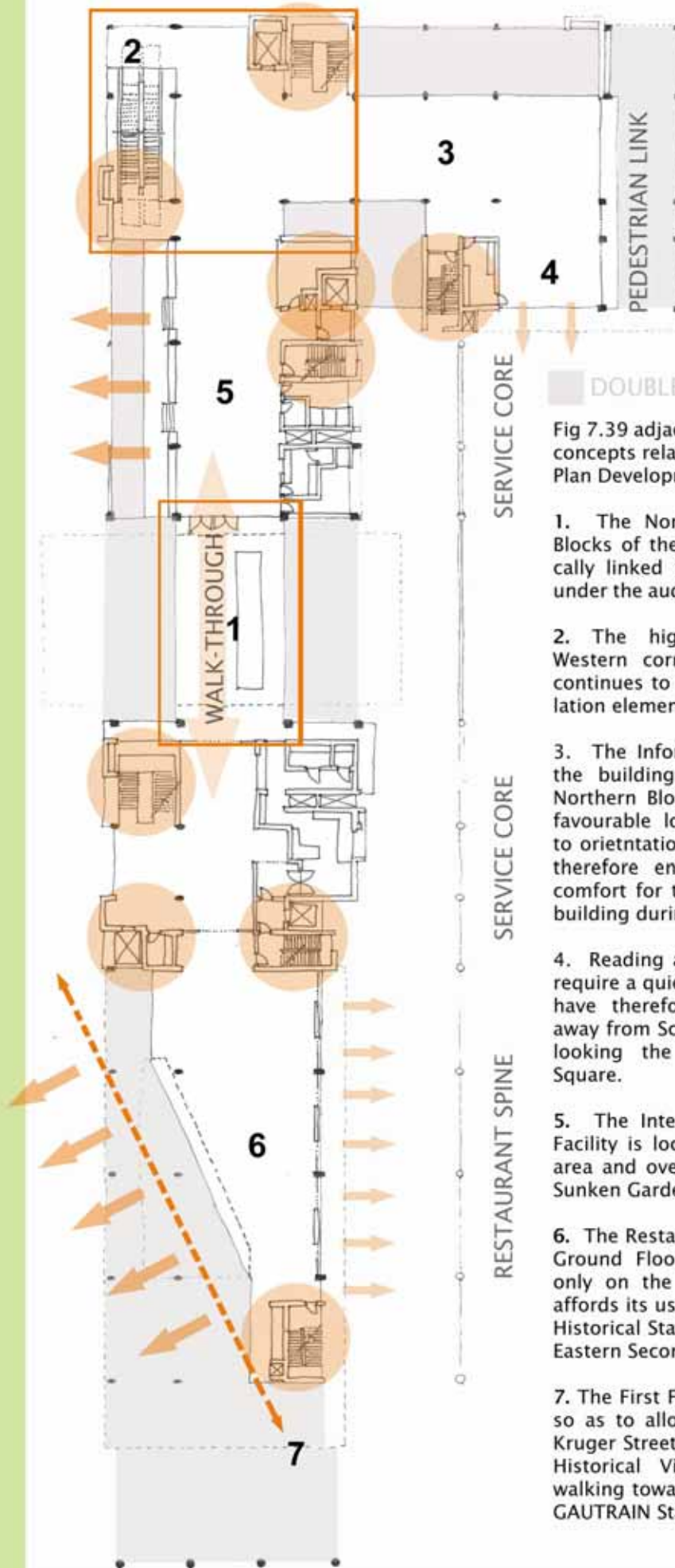
SCHEIDING INFORMATION SPINE

CIRCULATION CORE

INTERNET COMMUNICATION SPINE

CIRCULATION CORE

RESTAURANT SPINE



DOUBLE VOLUMES

Fig 7.39 adjacent shows important concepts relating to the First Floor Plan Development. These include:

1. The Northern and Southern Blocks of the building are physically linked by a bridge passing under the auditorium on this level.

2. The highly visible North-Western corner of the building continues to be defined by circulation elements.

3. The Information functions of the building are placed in the Northern Block as it is the most favourable location with regards to orientation. This position will therefore ensure the best user comfort for those working in the building during the day.

4. Reading and discussion areas require a quieter environment and have therefore been positioned away from Scheiding Street, overlooking the Eastern Secondary Square.

5. The Internet Communication Facility is located above the cafe area and overlooks the Historical Sunken Garden Square.

6. The Restaurant is raised above Ground Floor Level, and begins only on the First Floor, as this affords its users views of both the Historical Station Building and the Eastern Secondary Square.

7. The First Floor Slab is cut away so as to allow views of the Paul Kruger Street intersection and the Historical Victoria Hotel, when walking towards the city from the GAUTRAIN Station.

Concept Development

SKETCH PLAN DEVELOPMENT

FIRST FLOOR PLAN

Scale 1:500



CIRCULATION CORE

CONFERENCE FACILITIES

AUDITORIUM

CIRCULATION CORE

RESTAURANT SPINE

SCHEIDING STREET OFFICE SPINE

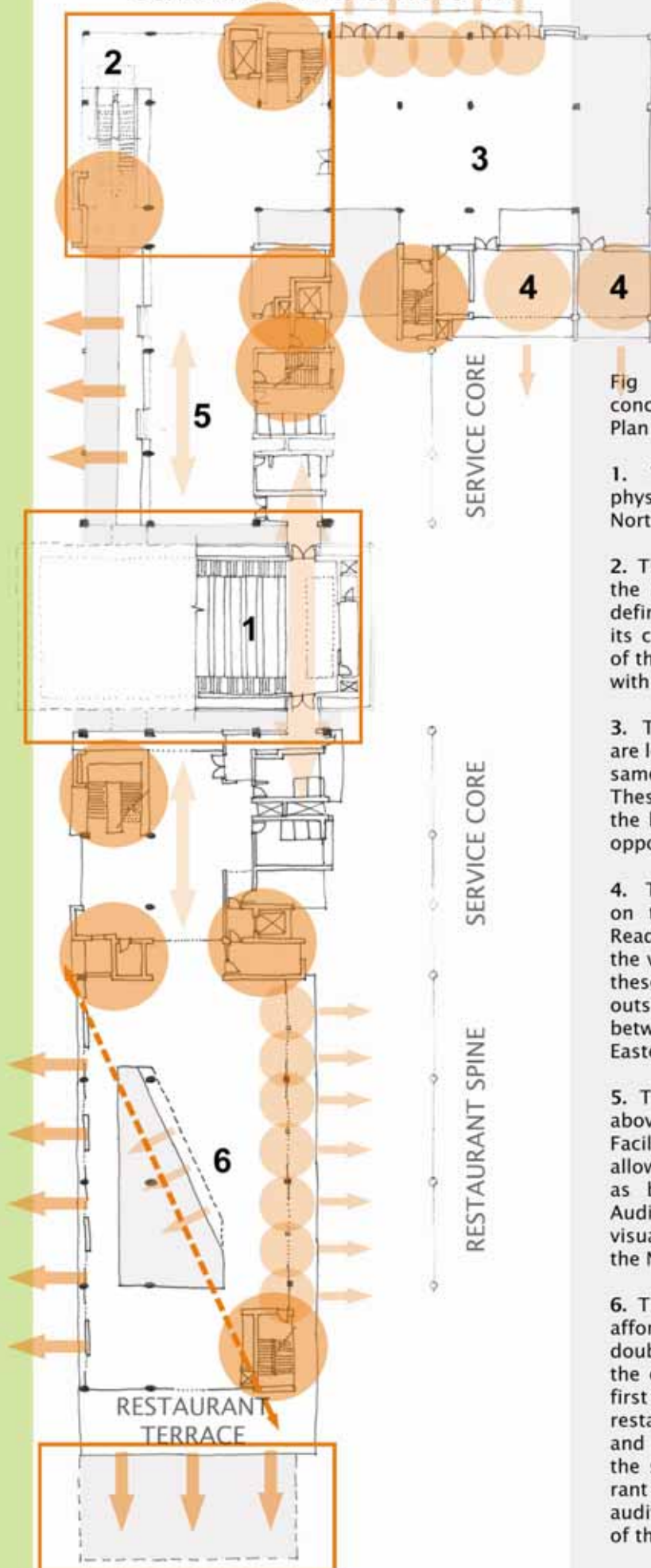


Fig 7.40 adjacent shows important concepts relating to the Second Floor Plan Development. These include:

1. The hovering auditorium forms a physical link between the 'i-hub's Northern and Southern blocks.

2. The vertical circulation elements of the North-Western Corner continue to define the street interchange and add to its character. The diagonal movement of the escalators becomes more evident with height.

3. The Office functions of the building are located in the Northern block for the same reason mentioned previously. These functions also serve to introduce the building into the city fabric on the opposite side of Scheiding Street.

4. The Boardroom and Meeting Room on this level are located above the Reading and Discussion Area below, for the very same reasons. Balconies allow these rooms to be extended into the outside spaces, forming a connection between the building's interior and the Eastern Secondary Square.

5. The Conference Facilities are located above the Internet Communication Facilities on the First Floor Level. This allows views of the space below as well as being in close proximity to the Auditorium Entrance. This space is visually linked to the auditorium along the North-South axis of the building.

6. The Restaurant's Second Level also affords views to the East and West. The double volume cut diagonally through the centre, echoes the diagonal of the first floor slab, and visually connects the restaurant to the floors below. balcony and terrace spaces stretch out toward the surrounding context. The restaurant foyer is visually linked to the auditorium along the North-South axis of the building.

SKETCH PLAN DEVELOPMENT

SECOND FLOOR PLAN

Scale 1:500

DOUBLE VOLUMES

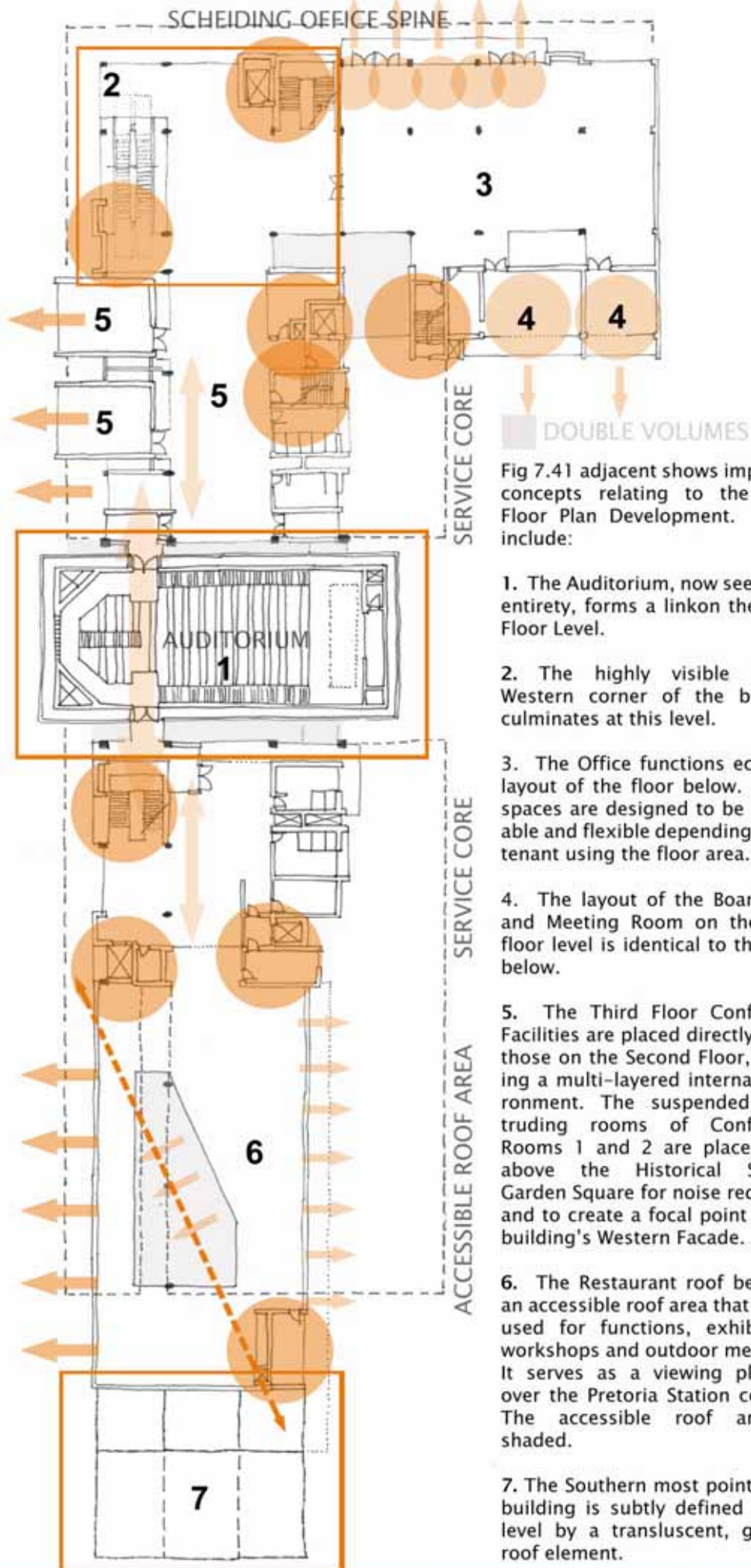


CIRCULATION CORE

CONFERENCE FACILITIES

CIRCULATION CORE

ACCESSIBLE ROOF AREA



DOUBLE VOLUMES

Fig 7.41 adjacent shows important concepts relating to the Third Floor Plan Development. These include:

1. The Auditorium, now seen in its entirety, forms a link on the Third Floor Level.
2. The highly visible North-Western corner of the building culminates at this level.
3. The Office functions echo the layout of the floor below. These spaces are designed to be adaptable and flexible depending on the tenant using the floor area.
4. The layout of the Boardroom and Meeting Room on the third floor level is identical to the floor below.
5. The Third Floor Conference Facilities are placed directly above those on the Second Floor, creating a multi-layered internal environment. The suspended, protruding rooms of Conference Rooms 1 and 2 are placed high above the Historical Sunken Garden Square for noise reduction and to create a focal point on the building's Western Facade.
6. The Restaurant roof becomes an accessible roof area that can be used for functions, exhibitions, workshops and outdoor meetings. It serves as a viewing platform over the Pretoria Station context. The accessible roof area is shaded.
7. The Southern most point of the building is subtly defined at this level by a translucent, glowing roof element.



SKETCH PLAN DEVELOPMENT

THIRD FLOOR PLAN

Scale 1:500

7.6 DEVELOPMENT OF THE SECTION - Northern Block

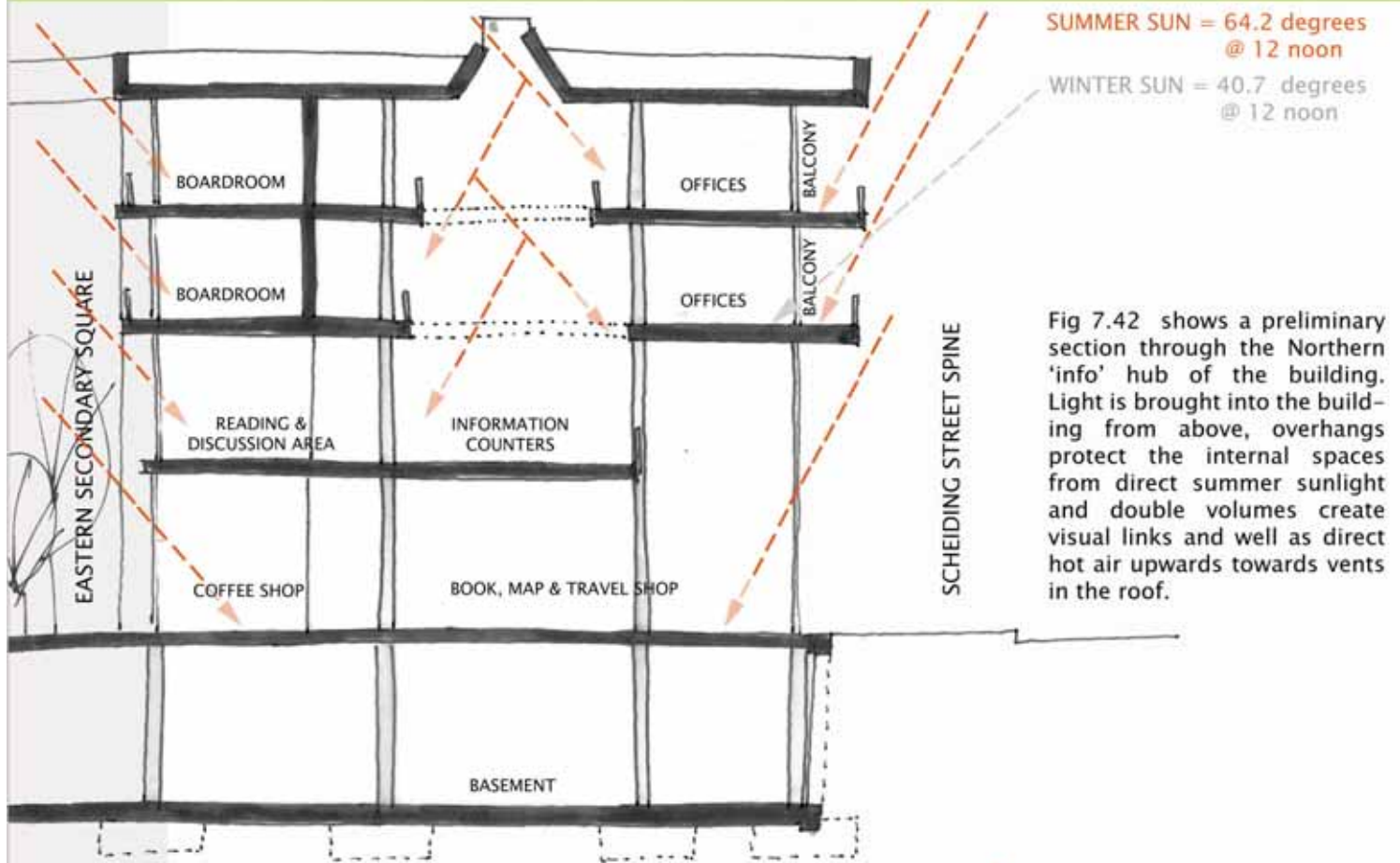


Fig 7.42 shows a preliminary section through the Northern 'info' hub of the building. Light is brought into the building from above, overhangs protect the internal spaces from direct summer sunlight and double volumes create visual links and well as direct hot air upwards towards vents in the roof.

Fig 7.42 PRELIMINARY SECTION Scale 1:250

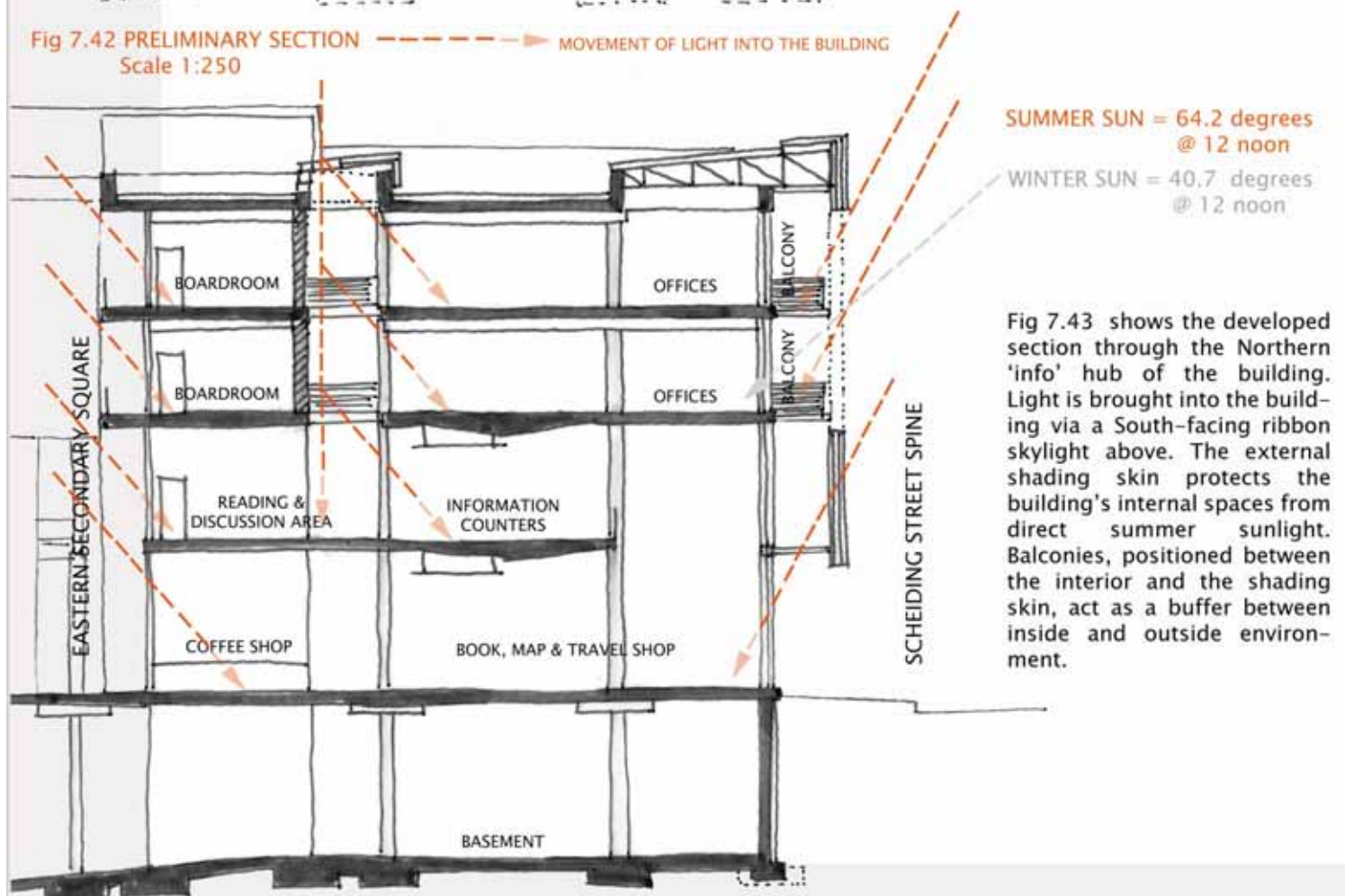


Fig 7.43 shows the developed section through the Northern 'info' hub of the building. Light is brought into the building via a South-facing ribbon skylight above. The external shading skin protects the building's internal spaces from direct summer sunlight. Balconies, positioned between the interior and the shading skin, act as a buffer between inside and outside environment.

Fig 7.43 DEVELOPED SECTION Scale 1:250

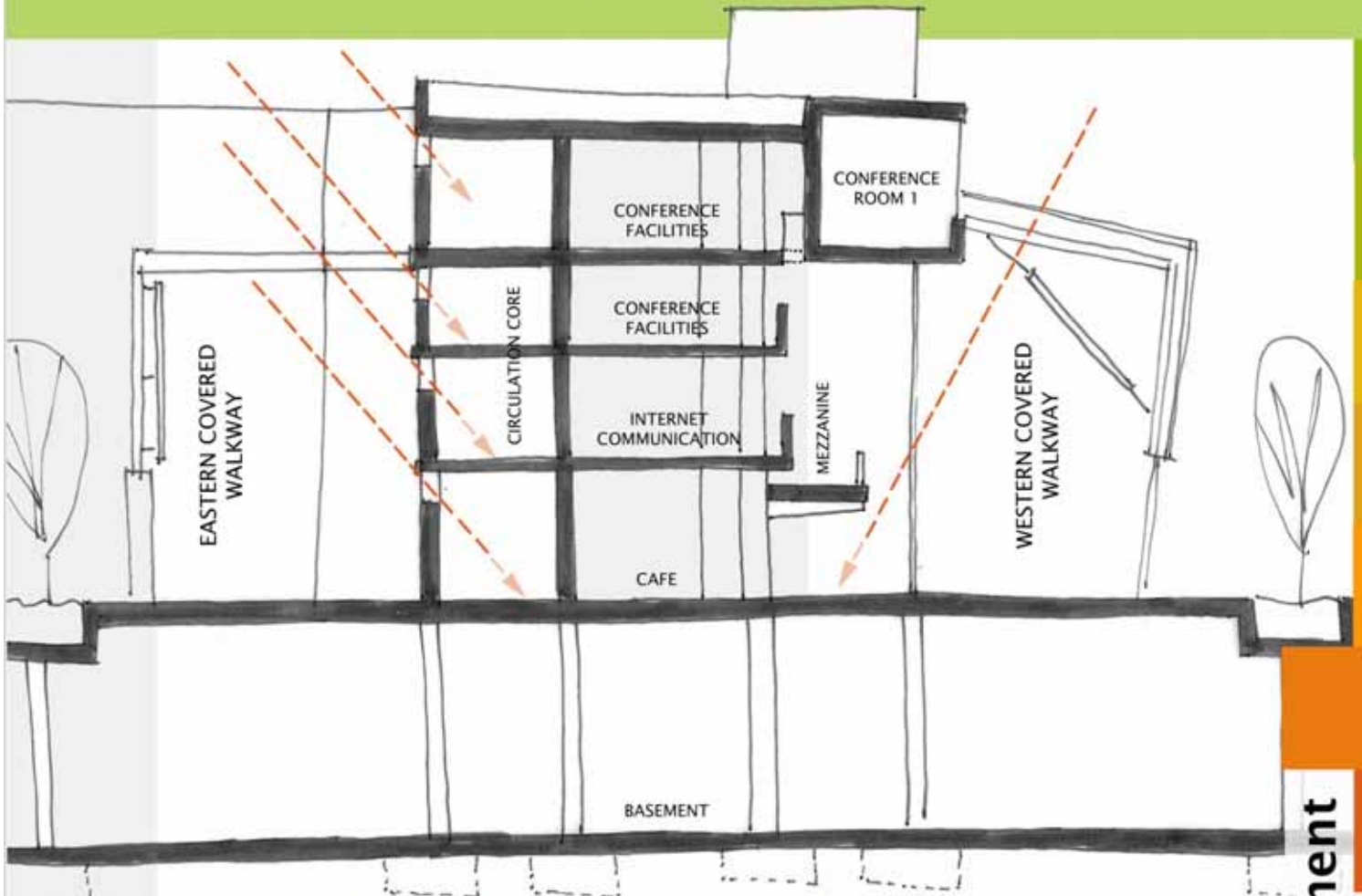


Fig 7.44 PRELIMINARY SECTION Scale 1:250

Fig 7.44 and 7.45 show sections through the North-Western wing of the building.

Fig 7.44 shows a preliminary section through the cafe, communication and conference spaces. Level differences are explored, as well as the path of light through shading devices into the building's internal spaces.

In Fig. 7.45, the developed section allows more light penetration into the middle interior space via a ribbon sky light above. An entrance atrium is also introduced to allow the penetration of natural light into the building.

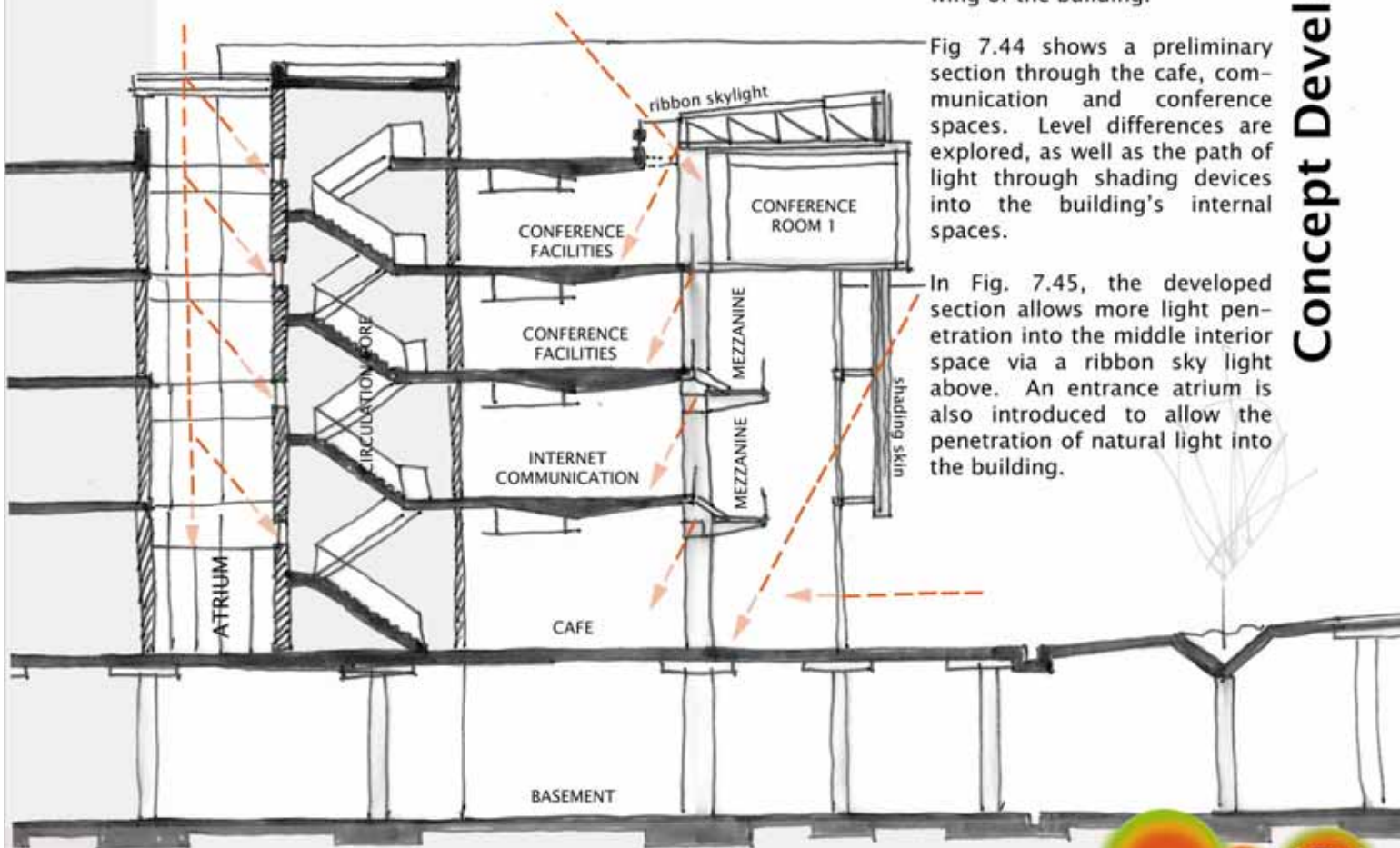


Fig 7.45 DEVELOPED SECTION Scale 1:250

DEVELOPMENT OF THE SECTION - Auditorium Link

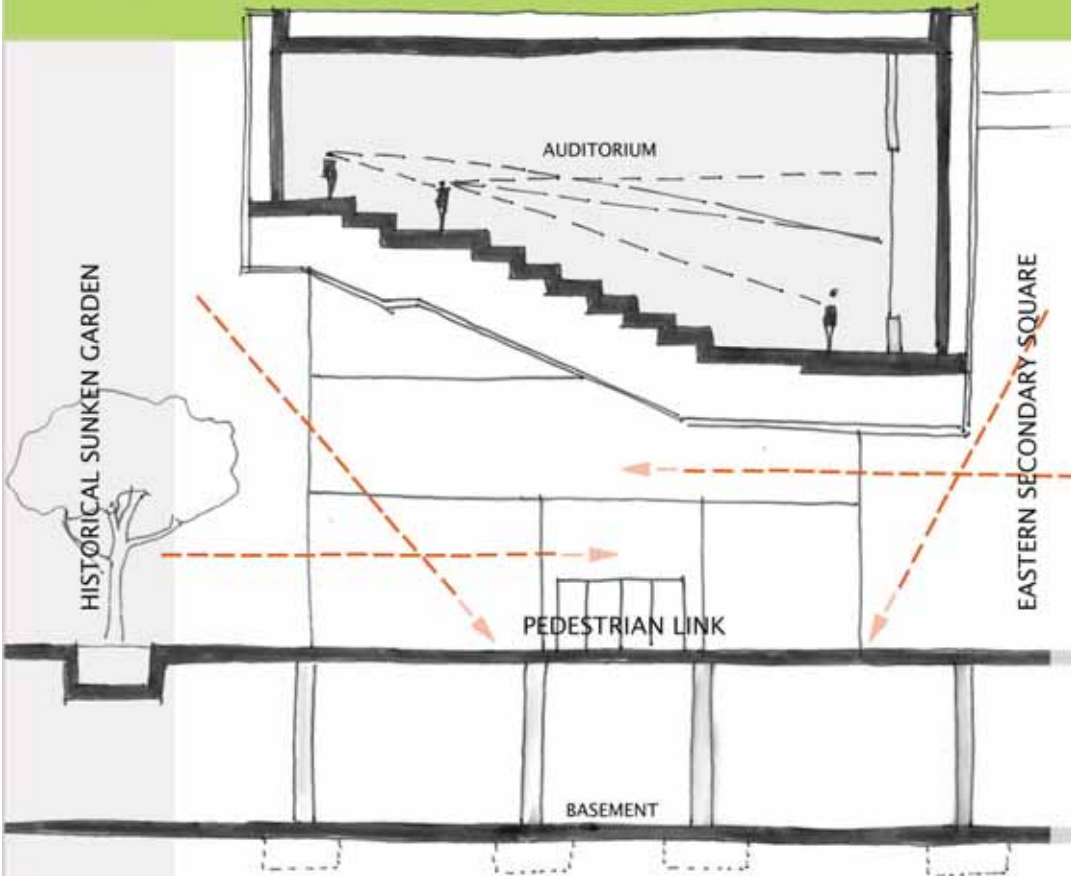


Fig 7.46 PRELIMINARY SECTION Scale 1:250 -----> MOVEMENT OF LIGHT INTO THE BUILDING

Fig 7.46 and 7.47 show a section through the auditorium that creates a link between the building's Northern and Southern blocks by 'hovering' between them.

Fig 7.46 shows the early development of the auditorium. It consists of an inner structural core and an outer translucent skin. The structure only links the second and third floors of the building, and the scale of the space below it appears to dominate.

Fig 7.47 shows a further developed section. Lines of sight within the auditorium have been defined. Provision has been made for a mechanical ventilation system and the structure has been made lighter to give the illusion of a 'hovering' element. A link at first floor level has been included, not only for practical reasons, but to create a scale that the pedestrian is able to relate to when walking beneath the suspended structure. The auditorium structure itself, will be discussed in depth in the next chapter.

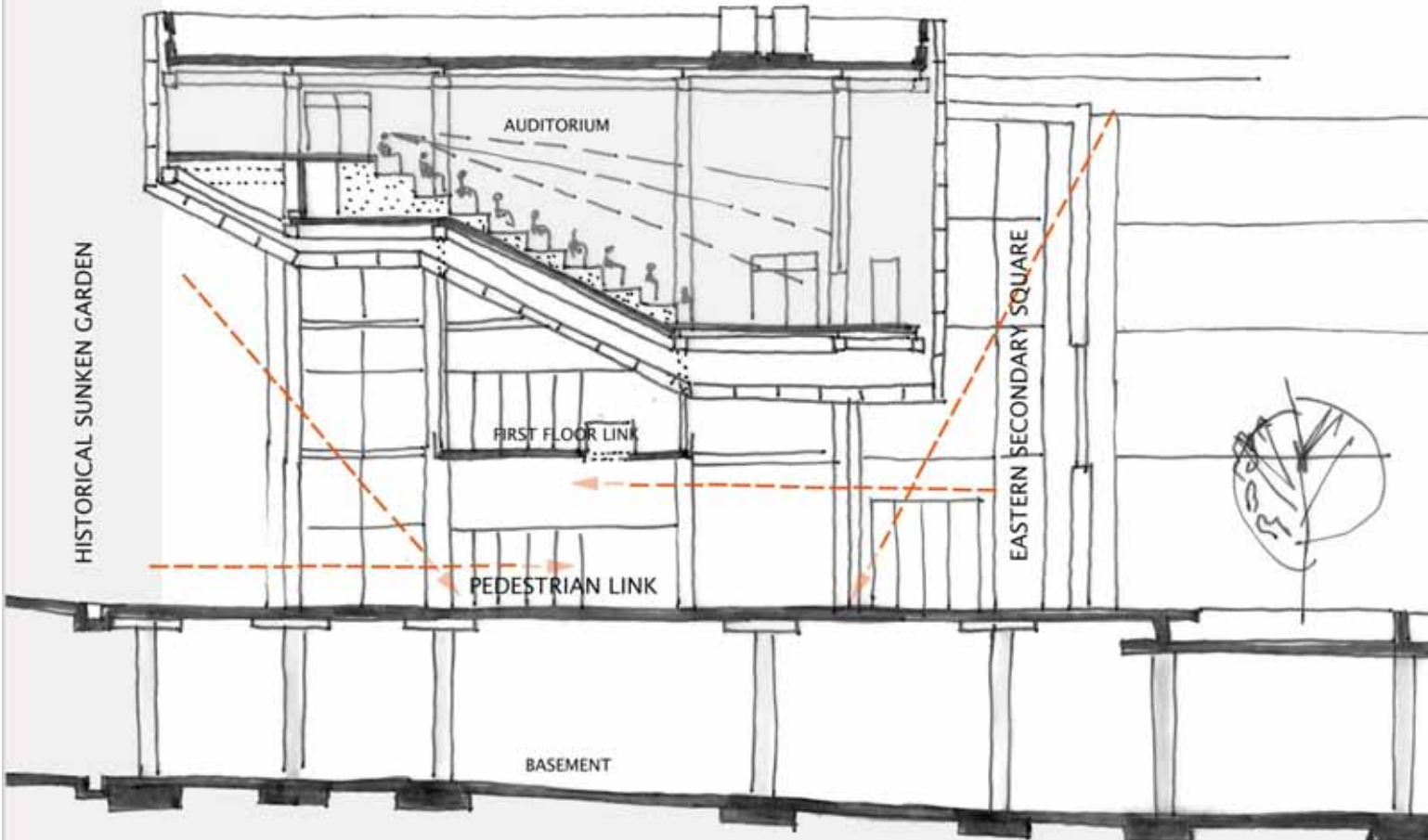


Fig 7.47 DEVELOPED SECTION Scale 1:250 -----> MOVEMENT OF LIGHT INTO THE BUILDING

DEVELOPMENT OF THE SECTION - Southern Block

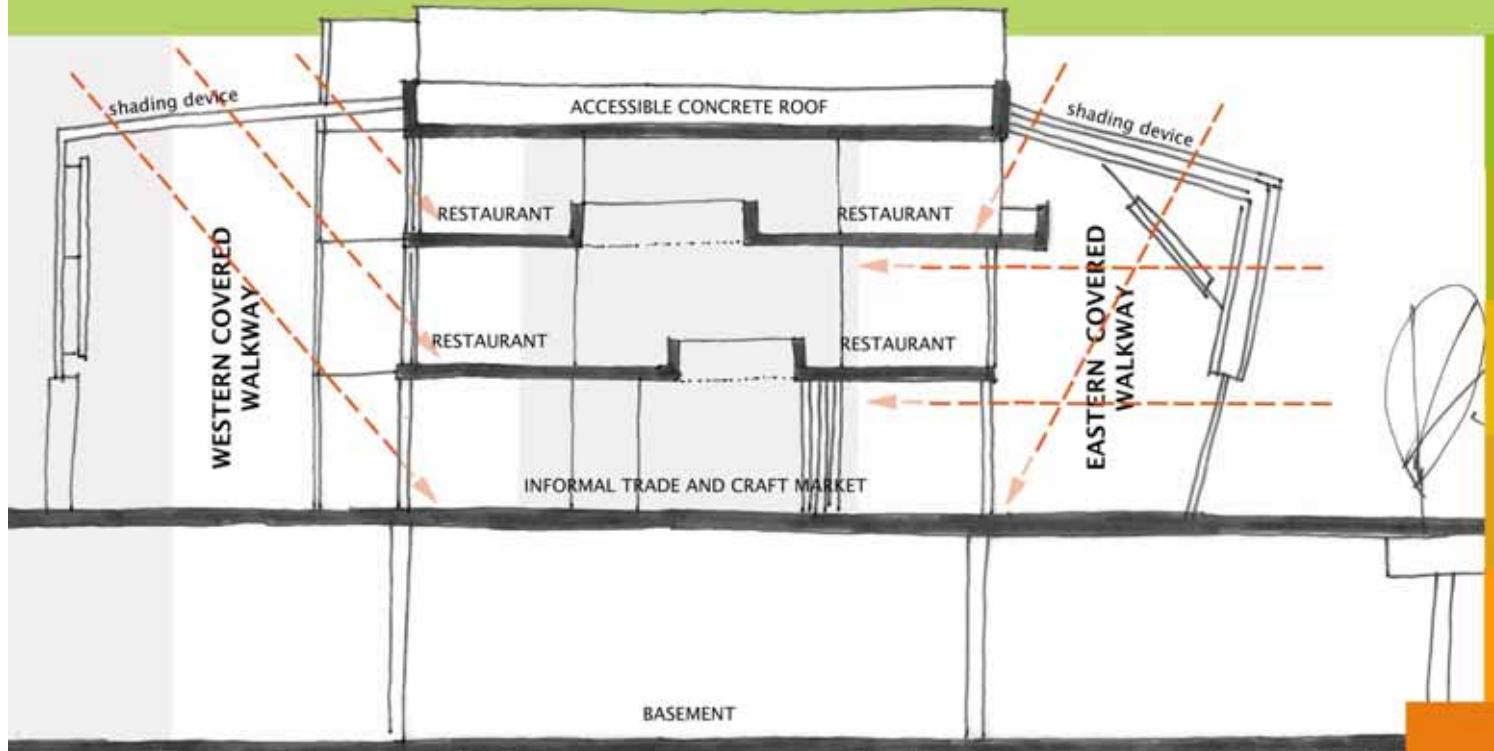


Fig 7.48 PRELIMINARY SECTION Scale 1:250

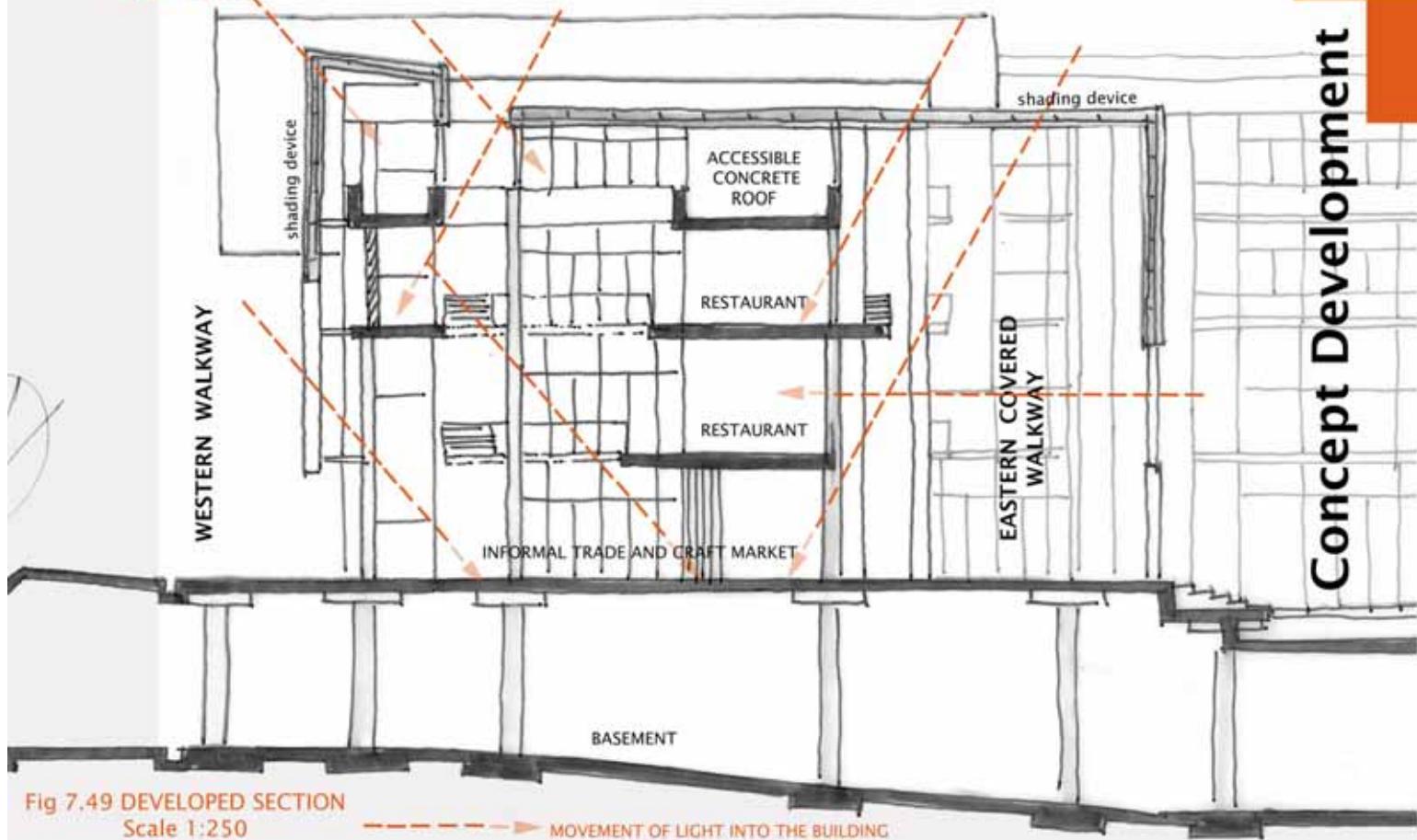


Fig 7.49 DEVELOPED SECTION Scale 1:250

Fig 7.48 and 7.49 show the development of the section through the craftmarket and restaurant area of the building. Fig 7.48 is an early section through the building. The accessible roof restricts natural light from entering the floors below. The walkways on either side of the building possess different characteristics, but function with regards to sun control. Although there are internal volumes present, the structure appears heavy. In Fig 7.49, a developed section through the same area is shown. The accessible roof is now open, allowing natural light to spill into the restaurant and craft market areas below. This opening also connects the volumes within the building, vertically, both physically and visually. The walkways on either side of the building now read as a unified element, 'wrapping' the structure within. The shading skin concept develops into a naturally ventilated, double-layered, perforated system that will be discussed in further detail in the pages to come.

7.7 3Dimensional Concept Development

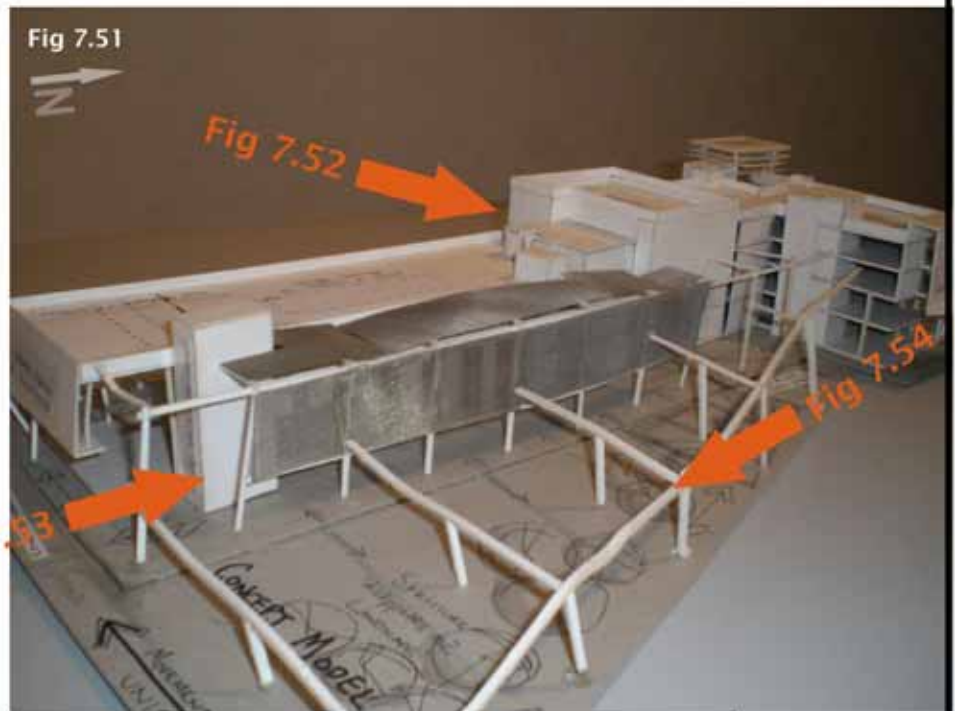
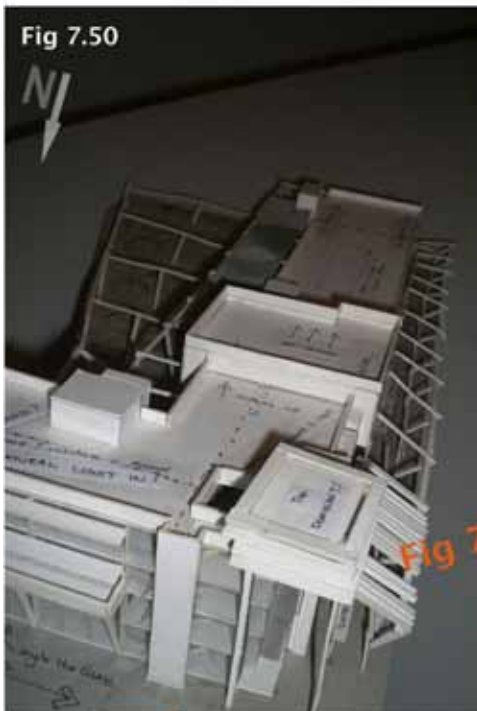


Fig 7.50 shows a view down the building from the North-Western corner to the Southern point. The North-Western corner dominates the Paul Kruger and Scheiding Street Intersection. Although cut away at ground level to allow movement, it seems isolated from the rest of the building's form. The Western walkway provides the necessary sun protection, and portrays movement, but reads as an 'add-on' and not as part of the facade. (photo by author)

Fig 7.51 shows a view of the Secondary Eastern Square from the Southern point of the site. The treatment of the Eastern facade of the building and circulation along the building edge is more successful as it is not fragmented. The desired effect of the building extending into the landscape could perhaps be better achieved through the use of natural elements such as effective landscape design. (photo by author)

Fig 7.52 shows the link between the Historical Sunken Garden and the Secondary Eastern Square. This link occurs on ground level. The pedestrian is able to walk under the auditorium of the building and experience the scale of the urban environment that surrounds them. Here, however, the covered walkway in front of the link distracts both from this link's legibility and accessibility. (photo by author)

Fig 7.53 shows the view that a commuter is confronted with when walking North from the Pretoria GAUTRAIN Station. Although the Eastern movement spine is well defined, and the Secondary Eastern Square appears inviting, there is no visual link through the building to the Historical Sunken Garden and the city beyond. This decreases the legibility of the site and may result in the disorientation of the commuter. (photo by author)

Fig 7.54 shows the pedestrian link between the Scheiding Street edge and the Secondary Eastern Square. This link passes between the 'i-hub' building and the building directly adjacent. It serves as a vital visual and physical link for those using the Secondary Eastern Square. For those using the Secondary Eastern Square, its presence creates an awareness of the city beyond, and shows a means of exiting the space if need be. At this stage the link is perhaps too narrow and the scale slightly inhumane. (photo by author)



Fig 7.52



Fig 7.53



Fig 7.54

Preliminary Elevations

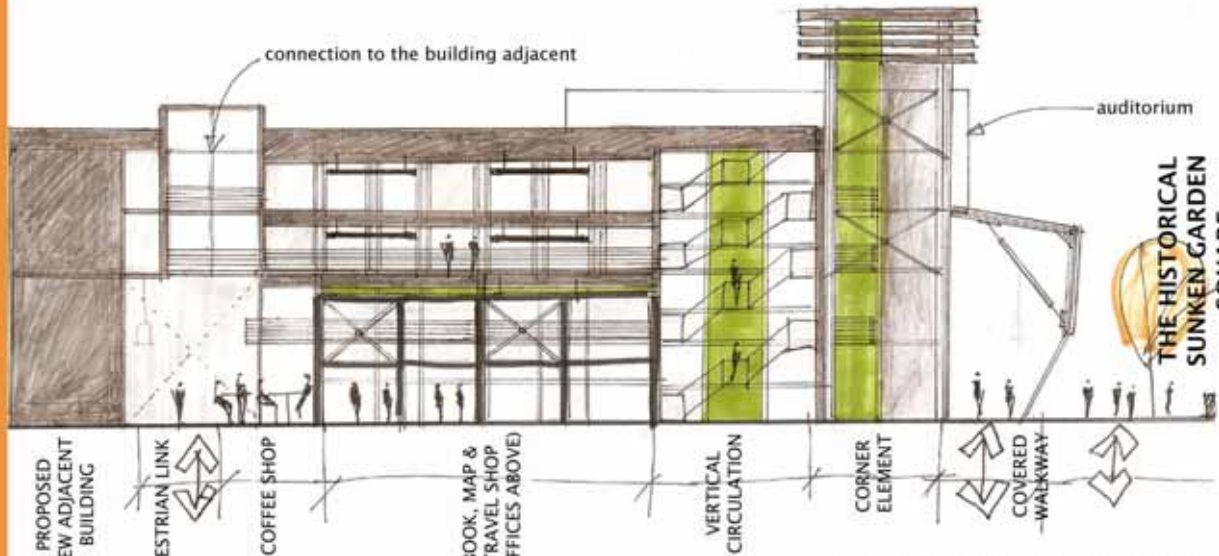


Fig 7.55 Northern Elevation
Scale 1:500

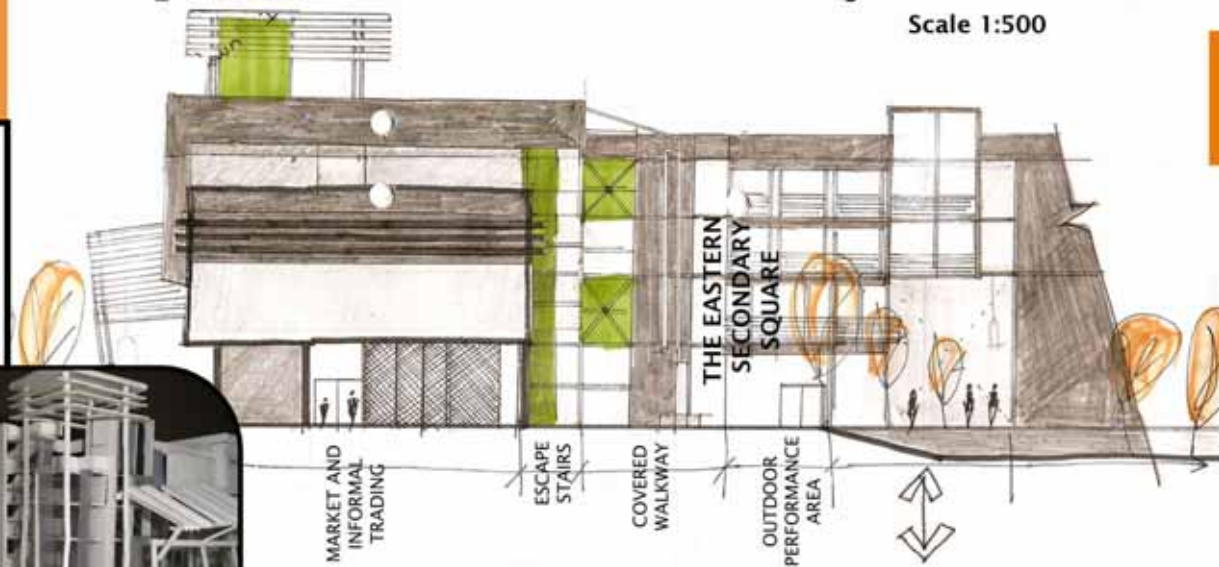


Fig 7.56 Southern Elevation
Scale 1:500



Fig 7.57



Fig 7.58



Fig 7.59

Concept Model 1

Fig 7.57 shows the corner of the building that defines the South-Eastern corner of the Paul Kruger and Scheiding Street interchange. (photo by author)

Fig 7.58 shows another view of the Western walkway from the South. This walkway directs movement along the Eastern side of the Historical Sunken Garden Square. (photo by author)

Fig 7.59 once again shows a view of the building's North-Western corner. The vertical supporting elements appear slender and flimsy. (photo by author)

Concept Development



Fig 7.60 Eastern Elevation
Scale 1:500

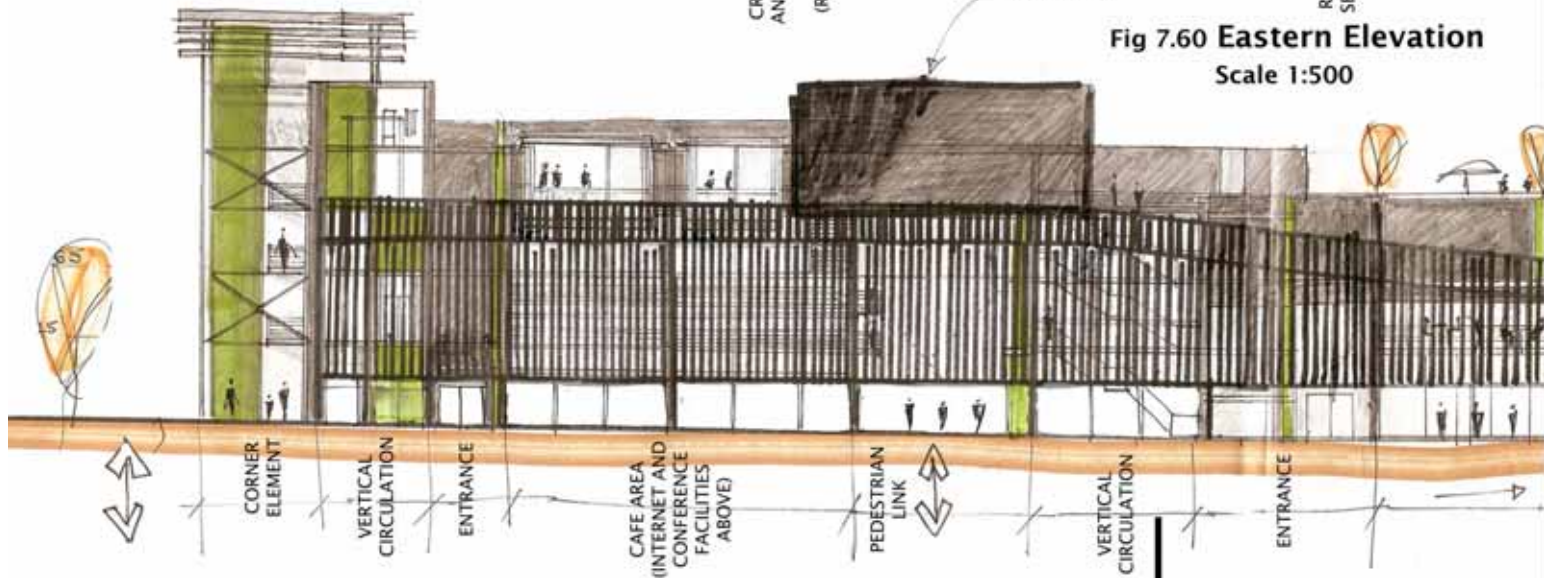
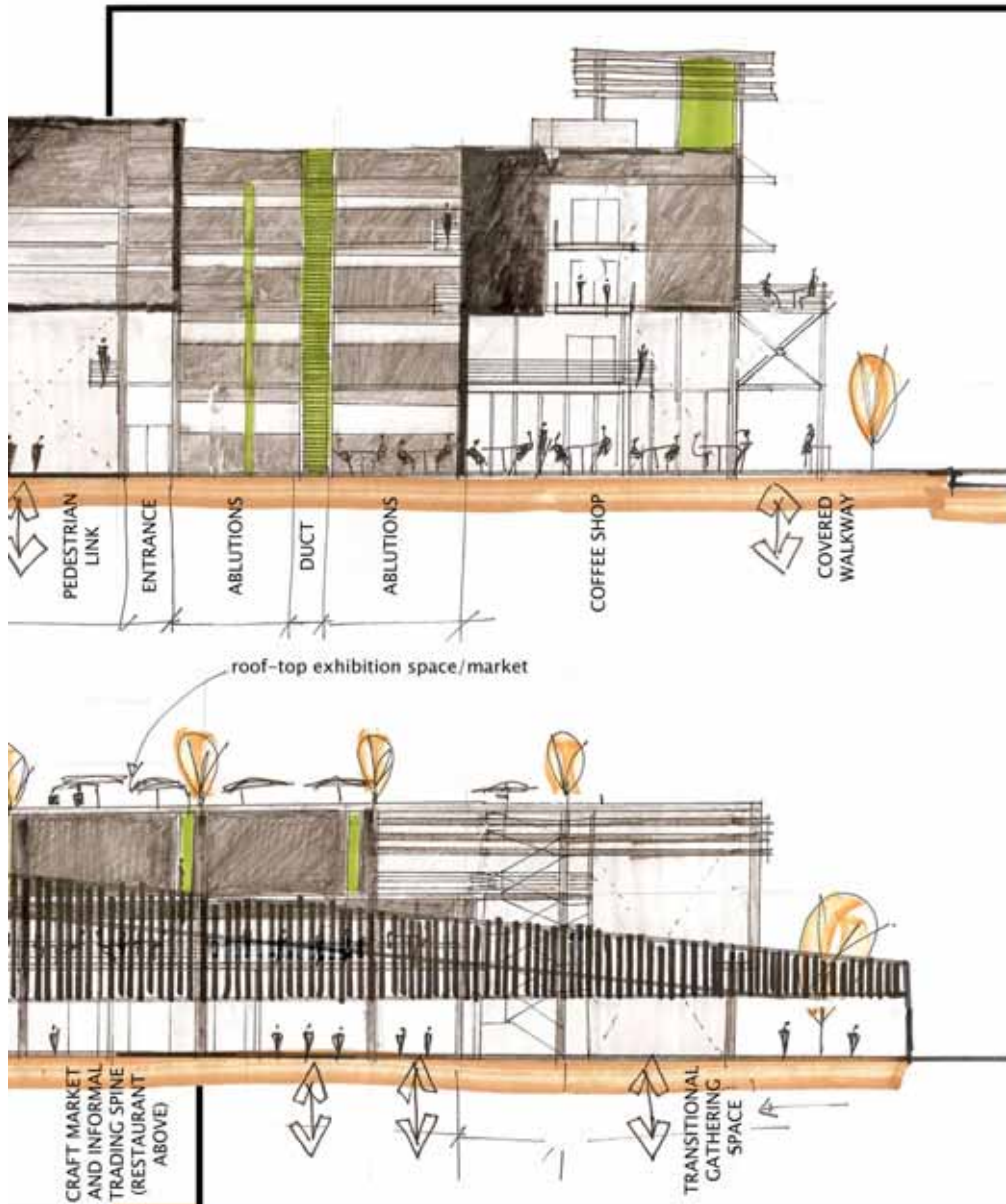


Fig 7.61 Western Elevation
Scale 1:500

Eastern Elevation

Fig 7.60 shows the Eastern facade of the building. Ablutions and services have been located on this side of the building as the Western edge of the building is exposed to the most pedestrian activity. The Eastern Secondary Square is a space with a different, slower and quieter character.

The horizontal concrete slabs are expressed in elevation. These are transversed by the vertical duct elements, which instead of being concealed, have been made into strong vibrant design elements. These shafts are read, by the on-looker, as shafts of light and colour that pierce the building, adding a lightness to the heavy solid form of the service cores.



Western Elevation

Fig 7.61 shows the character of the Western facade. The facade is much lighter so as to encourage interaction with the passerby. Due to the extensive amount of glazing that is used to create this effect, a shading device, functioning too as a walkway, has been included. It is this shading system that dominates the aesthetic of the Western facade.

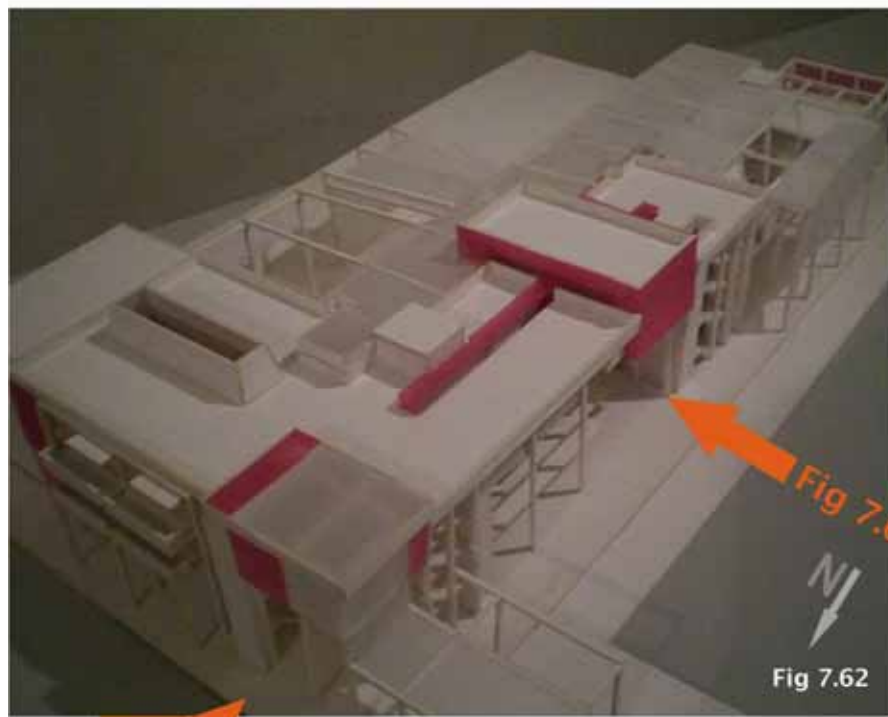


Fig 7.62



Fig 7.63

Fig 7.62 shows a view from the North-Western corner of the building, towards the South-East. The North-Western corner is better incorporated into the design aesthetic. The auditorium had been 'cut away' from the rest of the building and appears to hover in mid-air. This gives the building the quality of lightness, so important in its historically sensitive surroundings. A ribbon skylight has been added to introduce natural light into the building's internal spaces. The Western facade is now exposed and an alternative method of sun protection will need to be investigated. (photo by author)

Fig 7.63 shows a view from the South. The concept of wrapping the building in a sun protection screen, begins to develop here. This shading 'skin', although primarily functional, has the potential to become a strong element within the design. (photo by author)

Fig 7.64 once again shows the link between the Historical Sunken Garden and the Secondary Eastern Square. The scale of the building's auditorium becomes more evident as the covered walkway, that previously distracted from the links legibility and accessibility, has been removed. The sloping floor of the auditorium is expressed acting as a guide when transitioning from one space to another and increasing the interest and quality of the space below. (photo by author)

Fig 7.65 again shows the view that a commuter is confronted with when walking North from the Pretoria GAUTRAIN Station. The covered walkway along the building's Eastern edge remains well defined. The restaurant balcony begins to protrude further into this space so as to bring a human scale to the walkway. The Southern point of the building is becoming more transitional, allowing views of the city beyond, and therefore connecting the commuter both physically and visually on arrival. (photo by author)

Fig 7.66 shows an internal view down the building's North-South axis from the Northern corner. The user is able to see the Historical Sunken Garden all the way along this axis, as well as the Historical Station Building. The Sloping floor of the auditorium is also evident from within, making it a distinctive point of orientation. The diagonal line of the floor echoes in section, the language portrayed in elevation to the West. (photo by author)



Fig 7.64



Fig 7.65



Fig 7.66

Concept Model 2



Fig 7.67



Fig 7.68

Fig 7.67 shows a view of the covered protrusion of the building at the cafe area. This arrangement however detracts from the definition of the Historical Sunken Garden Square. (photo by author)

Fig 7.68 shows the interpretive space of the informal trading area and how the first floor slab of the restaurant has been cut away to allow for views into the city from this space. The design of the shading device in this image, adds a dynamism to this part of the Western facade. (photo by author)



Fig 7.69



Fig 7.70



Fig 7.71

Concept Model 2

Fig 7.69 shows the treatment of the Western facade of the building. (photo by author)

Fig 7.70 shows another view of the corner exposed to the Paul Kruger and Scheiding Street intersection. (photo by author)

Fig 7.71 shows a view of the roof elements, the means by which natural light enters the building. (photo by author)

Concept Development



Fig 7.72 again shows a view from the North-Western Corner of the building, towards the South-East. The building is now wrapped in a 'skin' that serves not only to protect it from the harsh sun, but also to unify the different functions expressed in the facade. This shading 'skin' is perforated, allowing diffused light to penetrate the building. Combined with the hovering auditorium, it adds to the building's quality of lightness. The North-Western Corner is subtly defined by the meeting of this shading 'skin's diagonal lines. The protrusion of the conference through the 'skin' breaks the surface and creates a focal point of the Western facade. (photo by author)

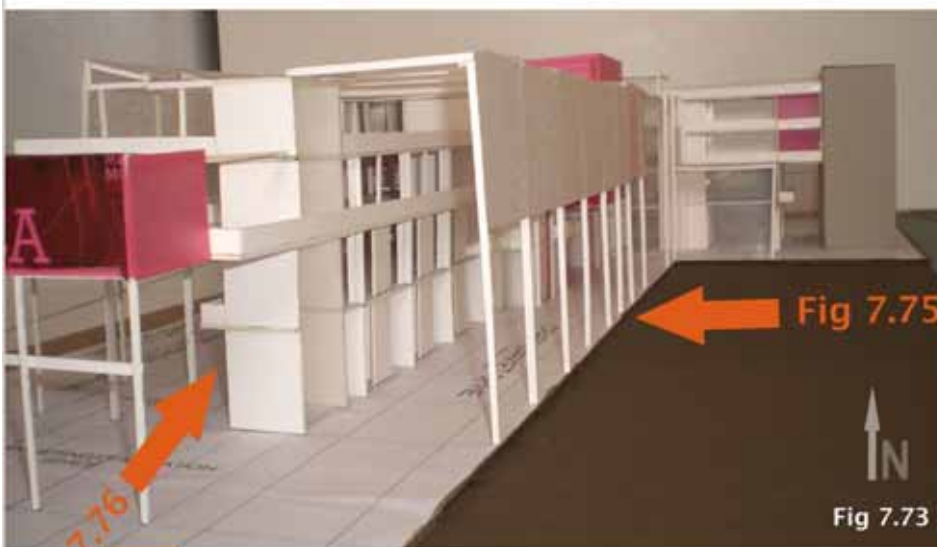


Fig 7.73 shows a view from the South. The transitional quality of the Southern point of the building is more pronounced. The scale of the link into Scheiding has been manipulated with the addition of a balcony that protrudes into the space. (photo by author)



Fig 7.74



Fig 7.75



Fig 7.76

Fig 7.74 again shows the link between the Historical Sunken Garden and the Secondary Eastern Square. A link has now also been provided on first floor level between the Northern and Southern blocks of the building. This renders the scale of the space under a auditorium less overwhelming. Movement through this space will now occur at a number of levels along the two axes, giving rise to a richly layered, intriguing space. (photo by author)

Fig 7.75 shows a view from the opposite side of the auditorium looking West towards the Historical Sunken Garden. It shows how the height difference of the ground auditorium floor gives rise to a differently experienced space. Balconies of the restaurant's bar and lounge areas protrude out into the space defined by the Eastern covered walkway. These protrusions result in interesting surface articulation and allow the building's users to interact with the transitional walkway space from above. (photo by author)

Fig 7.76 portrays the experience of the market area when entering it from the Southern point of the building. The first floor is cut away diagonally to increase vistas to the Victoria Hotel, Paul Kruger and Scheiding Street intersection and the city beyond. The gradual narrowing of the inner walkway entices the user towards the Southern entrance of the building. Due to the narrowing of this space, the views towards the Eastern Secondary Square are ever-changing. (photo by author)

Final Concept Model - by day



Fig 7.77 shows the North-Western corner treatment. The diagonals of the shading 'skin' lead the eye up towards the sky. The light colour of the 'skin' gives the impression of the building disappearing into the sky, making the structure appear light within its context. (photo by author)

Fig 7.78 shows the treatment of the Northern facade of the building. The shading 'skin' is cut away to allow clear views from the office balconies, as well as to allow natural light to penetrate into the spaces within. (photo by author)

Fig 7.79 shows the building's Southern Elevation. The character of this elevation contrasts with the building's other 'solid' facades. The Southern most point of the building portrays transition and direction. (photo by author)



Fig 7.80



Fig 7.81



Fig 7.82

Final Concept Model – by day

Fig 7.80 shows the space below the 'hovering' auditorium. The introduction of the pedestrian link on first floor level renders the volume beneath the auditorium comfortable and inviting. (photo by author)

Fig 7.81 shows the directional quality of the building's Eastern covered walkway. This walkway defines the edge of the Eastern Secondary Square, as well as guiding the user towards the building's entrance, directly to the North. (photo by author)

Fig 7.82 shows a view further up the Eastern covered walkway. The articulation of the building's Eastern facade becomes evident as columns and balconies protrude into the voluminous space of the walkway. (photo by author)

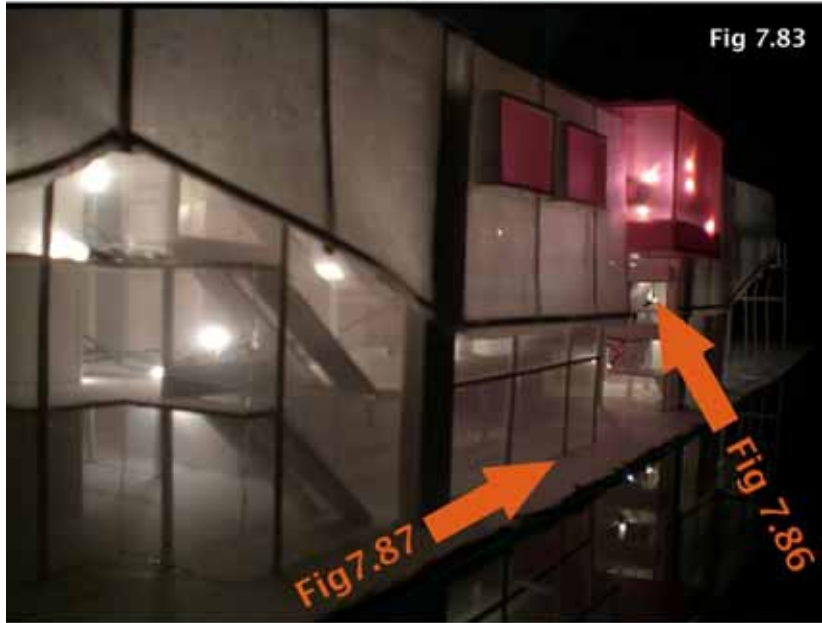


Fig 7.83

Fig 7.83 offers a view down the building to the Southern point. The facade is now unified, broken only by glowing focal points. At night the corner of the building exposed to the intersection becomes a prominent feature. The main Northern circulation core (lifts and escalators) are located at this corner. From within, the user is confronted with views of the intersection and from the outside of the building, the on-looker is able to see the movement of the building's mechanical elements transporting people up and down from floor to floor. The interaction between the inside and outside of the building at this point is maximised by the diagonal design of the shading 'skin' defining the corner at third floor level. (photo by author)



Fig 7.84

Fig 7.84 shows, once again a view of the Eastern covered walkway. Interesting shadows are cast through the Eastern facade onto the ground of the walkway at night. The solidity of the escape stair at the Southern most point becomes more evident at night, and serves as a contrast between the lightness of the shading skin which wraps the building. The Southern facade becomes a steel portal frame, stripped down to its essence. This treatment however, seems to detract from the design and results in a space that lacks definition. (photo by author)



Fig 7.85

Fig 7.85 shows the translucent box concept of the auditorium structure from above. Lit up at night, this design element dominates, creating an identifiable feature within the Station context. Also evident in this photo is the ribbon skylight that cuts longitudinally through the building. At night these elements allow shafts of light to escape from the building. (photo by author)



Fig 7.86

Fig 7.86 shows a view of the building when approaching it from the South-West. The shape of the auditorium is more evident by night. Beyond the hovering box, the mezzanine floors of the building's Northern block can be seen. It can also be seen here how the diagonal of the shading screen guides the eye up to the Paul Kruger Street skyline. The protruding conference rooms glow from within. (photo by author)



Fig 7.87

Fig 7.87 shows the South-Western facade of the building at night. Below the perforated screen, the structure of the building is seen. Strong vertical elements incorporated into the facade, break the horizontality of the 'skin' in front, creating visual diversity. An on-looker witnesses movement taking place behind the screen as surreal shadows, therefore adding to the intrigue that the building offers at night. (photo by author)

Final Concept Model – by night



Fig 7.88

Fig 7.89

Fig 7.88 shows an elevated view of the building's Western facade by night. (photo by author)

Fig 7.89 shows an elevated view of the building's Eastern facade by night. (photo by author)

Fig 7.90 shows the building's Western Elevation, fronting onto the Historical Sunken Garden Square, by night. (photo by author)



Fig 7.90

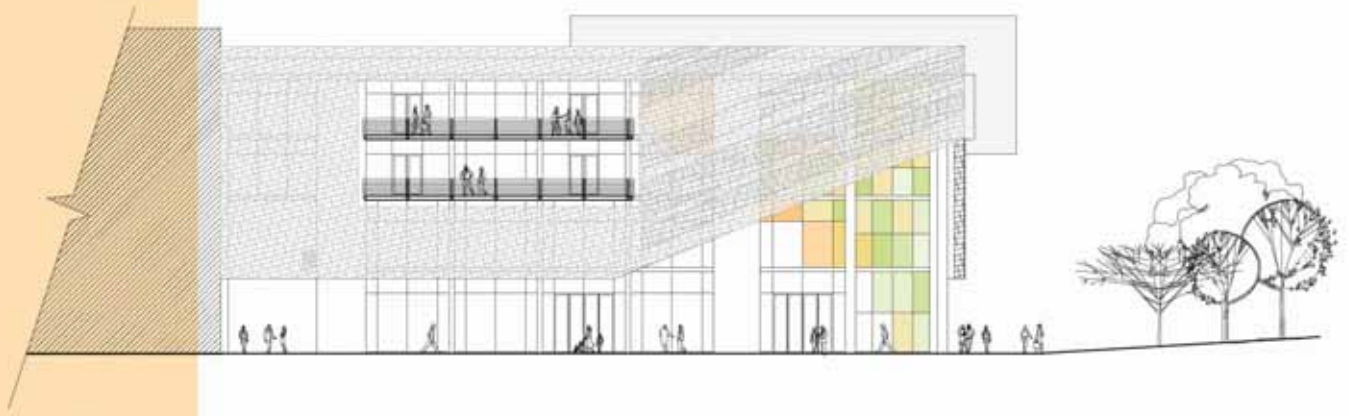


Fig 7.91 **Northern Elevation**
 Scale 1:500

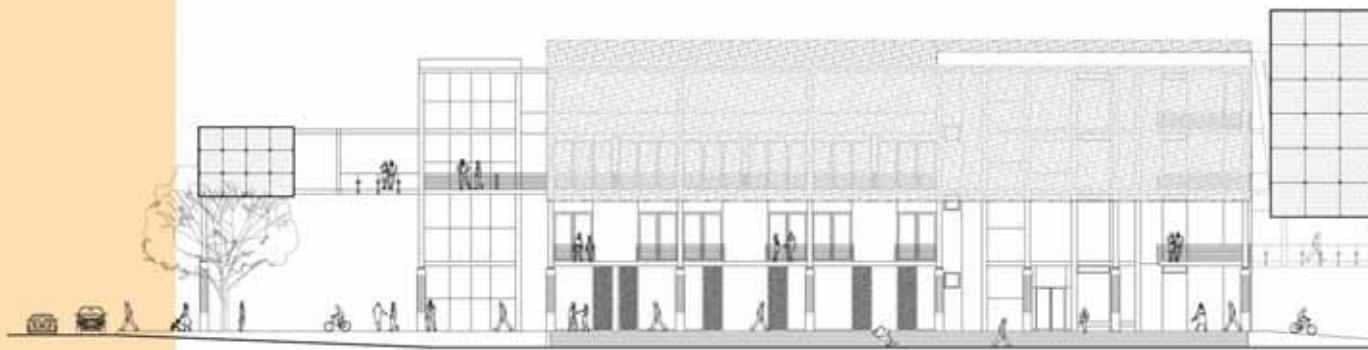


Fig 7.92 **Eastern Elevation**
 Scale 1:500

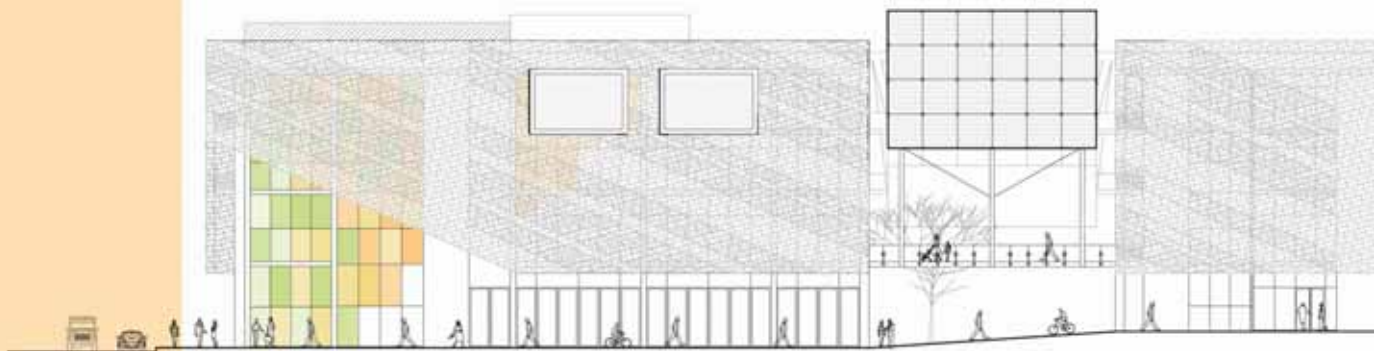


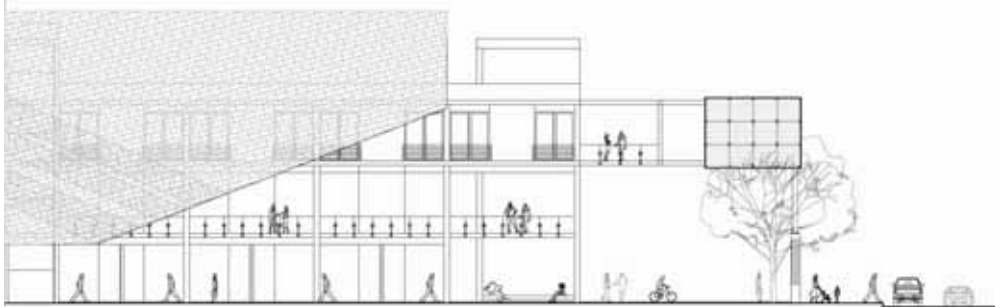
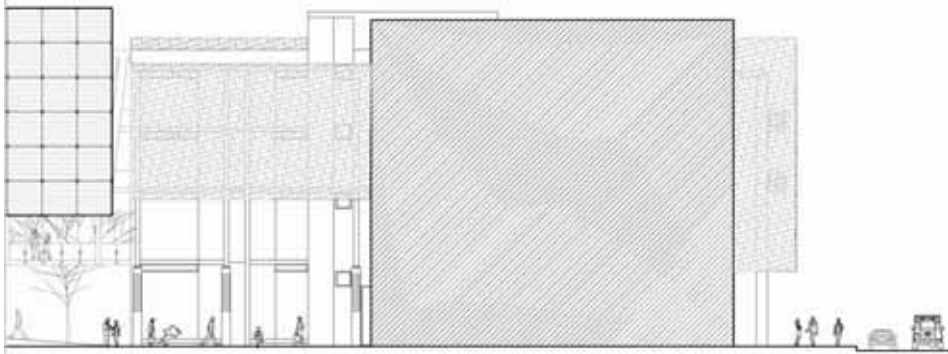
Fig 7.93 **Western Elevation**
 Scale 1:500

7.8 The Final Design

Fig 7.91 to Fig 7.94 show the elevations of the 'i-hub' building. The perforated shading 'skin' acts as a unifying element, while smaller focal points protrude through it, and are cut away from it, the building is still read as a whole. The glazing of the North-Western corner creates a playful succession of colour, as if to draw the vibrant colour palette of the city into the Pretoria Station site.



Fig 7.94 **Southern Elevation**
Scale 1:500



The Southern point of the building appears to touch the ground only slightly. It serves to gradually introduce the user to the built environment when approaching from the South. The effect of the perforated shading 'skin' disappearing into the sky is also evident from the above elevations.

The functions housed within the building, as well as the spatial planning of the 'i-hub' will now be discussed in more detail.



Fig 7.95
BASEMENT PLAN
Scale 1:500

- Service & Plant Rooms
- Stores
- Parking Office & Security
- Staff Locker Rooms
- Vertical Circulation
- Foyer Areas
- Water Storage
- Raised Kerbs
- Parkings
- Ducts

See pg. 121 for detailed layout of the Basement's Northern block.

See pg. 122 for detailed layout of the Basement's Southern block.

The 'i-hub' Basement

A basement has been incorporated into the design of the 'i-hub' building so as to alleviate the vehicular congestion that defines Pretoria Station currently. The basement will not only be built under the 'i-hub' building, but also under the Historical Sunken Garden Square and the Eastern Secondary Square. The Historical Sunken Garden will be re-instated after construction (the design of which does not form part of this project proposal). The treatment of the basement will be discussed in the chapter that follows.

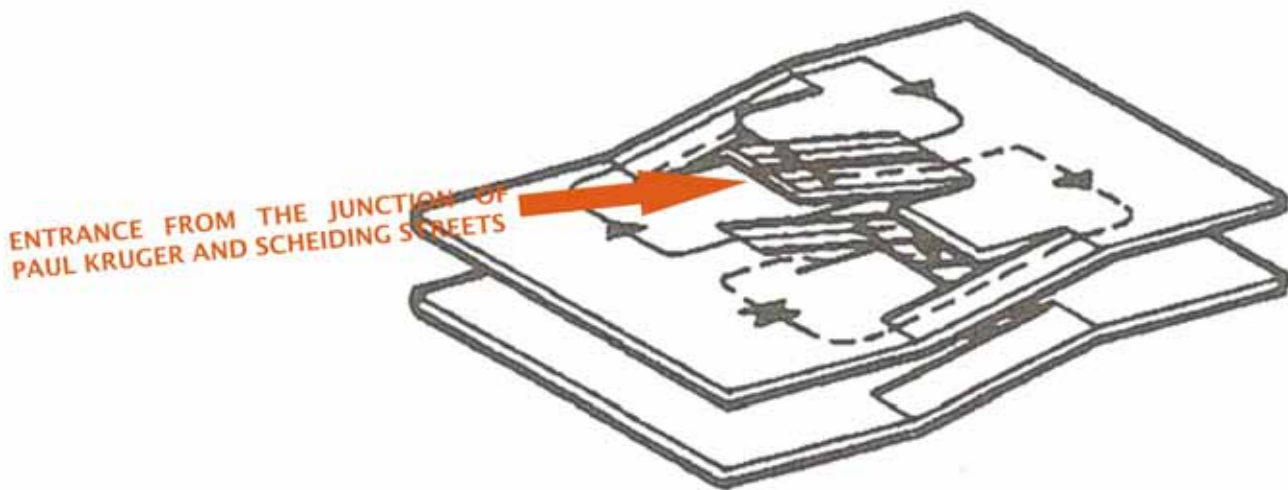


Fig 7.96 shows a basement similar to the one under the 'i-hub' building and the Historical Sunken Garden Square. Although, not identical, this image shows how the basement will be accessed at the centre, from the street. (Adler 1999:4-18)

The basement is designed to cater for vehicular traffic. It is for this reason that the dimensions of different transport modes have been studied, some of which are reflected in the diagrams below.

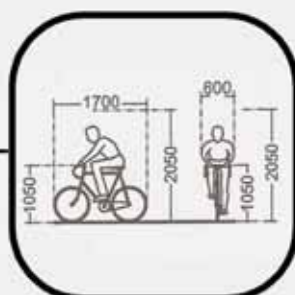


Fig 7.97 shows the dimensions of a bicycle. (Adler 1999:4-1)

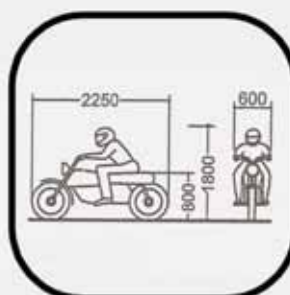


Fig 7.98 shows the dimensions of a motorcycle. (Adler 1999:4-1)

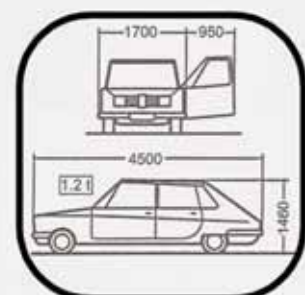


Fig 7.99 shows the dimensions of the average car. (Adler 1999:4-1)

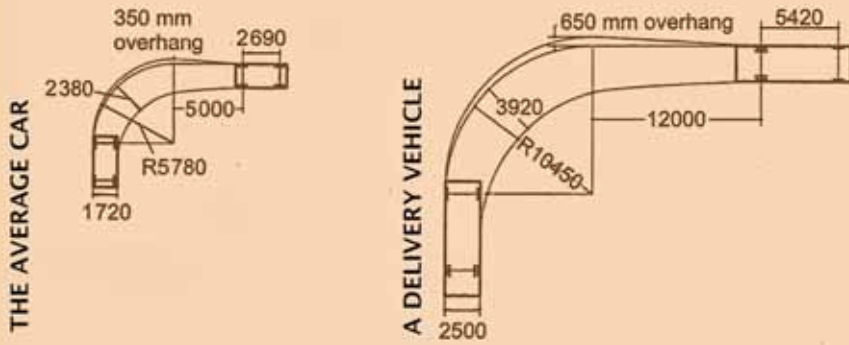


Fig 7.100 and Fig 7.101 show the investigation done regards to the turning circles required for different vehicles. (Adler 1999:4-5)

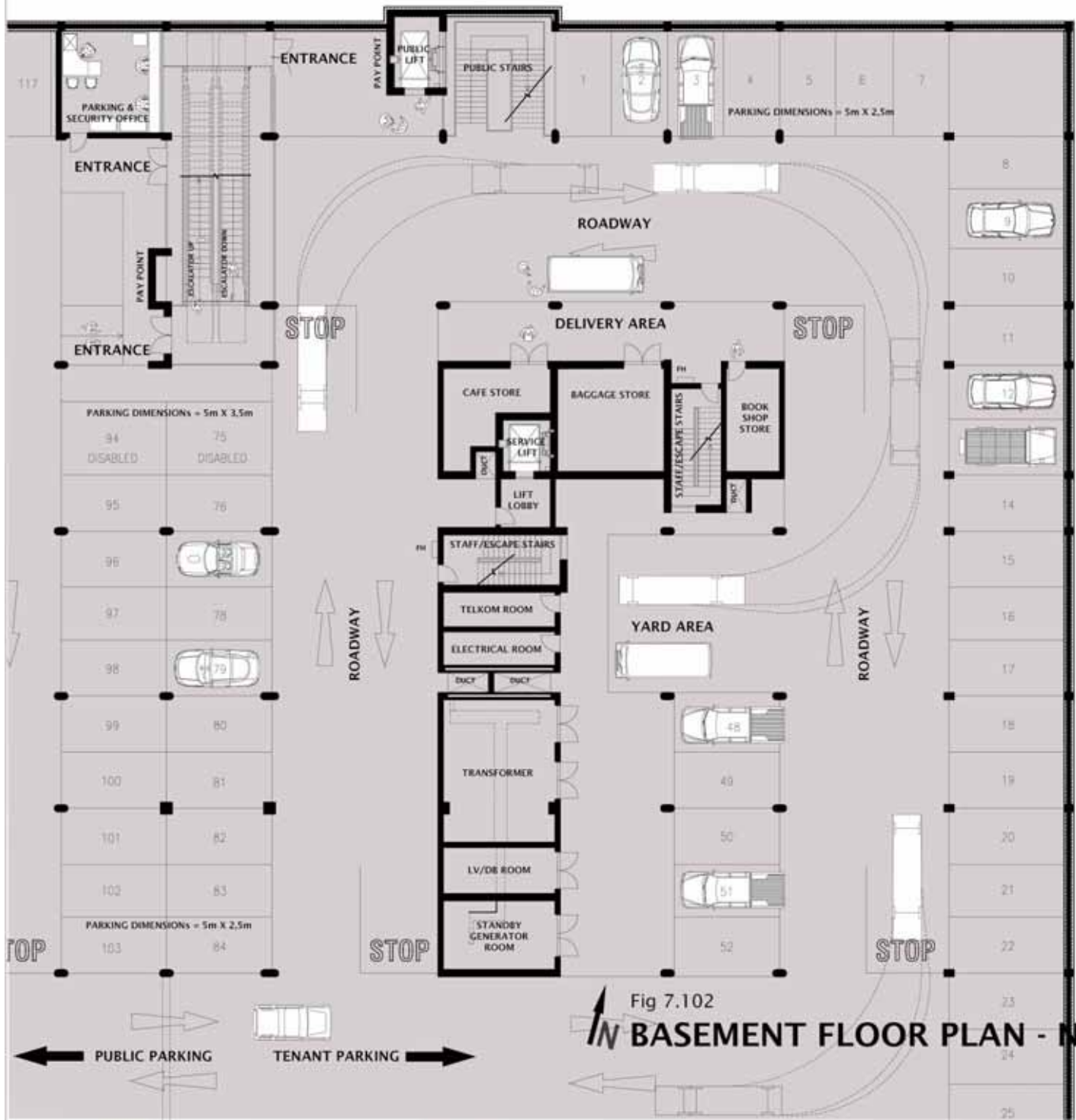


Fig 7.102

BASEMENT FLOOR PLAN - North

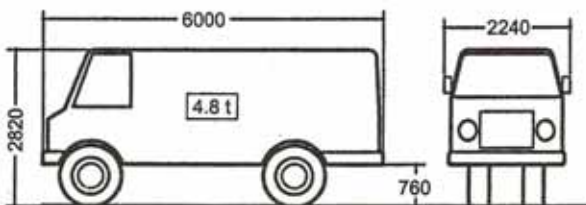
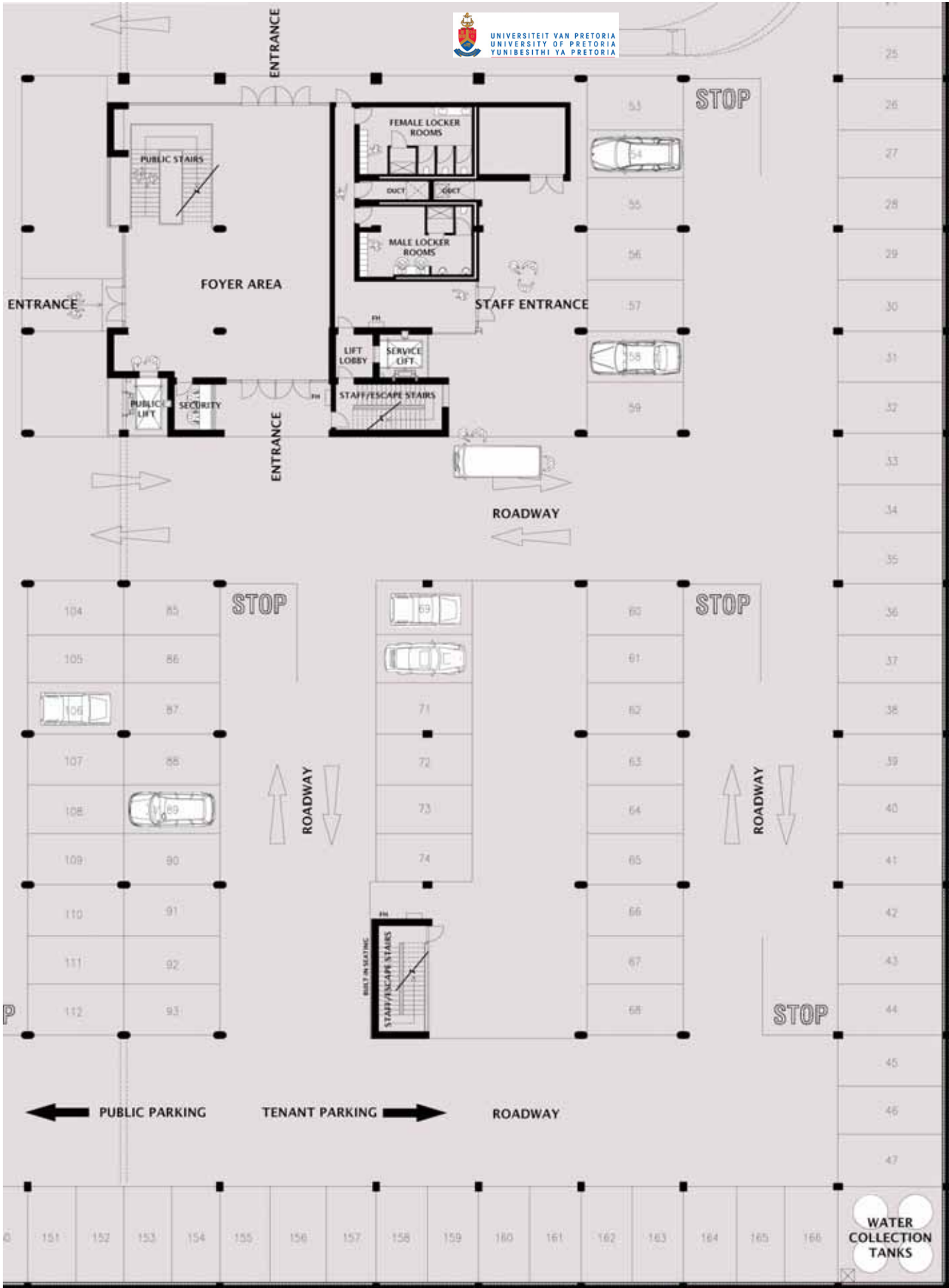


Fig 7.103 shows the dimensions of the average delivery vehicle. (Adler 1999:4-2)

Fig 7.104
BASEMENT PLAN - South



Fig 7.105
GROUND FLOOR PLAN
Scale 1:500

- Book, Map & Travel Shop
- Coffee Shop
- Foyer & Exhibition Space
- Cafe Seating & Amenities
- Circulation Space
- Ablutions
- Vertical Circulation
- Informal Trading Area
- Craft Market
- Gathering Space
- Pedestrian Links & Covered Walkways
- Ducts

See pg. 125 for detailed layout of the Ground Floor's Northern block.

See pg. 126 for detailed layout of the Ground Floor's Southern block.

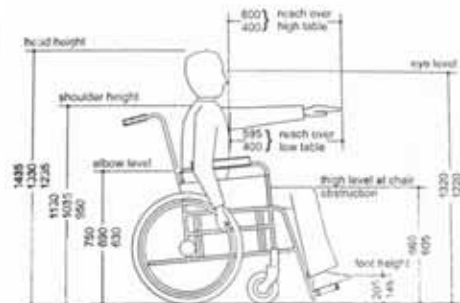


Fig 7.106 Dimensions for those in wheelchairs. (Adler 1999:2-9)

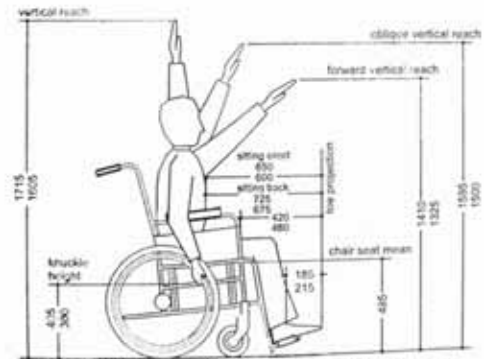


Fig 7.107 Dimensions for those in wheelchairs. (Adler 1999:2-9)

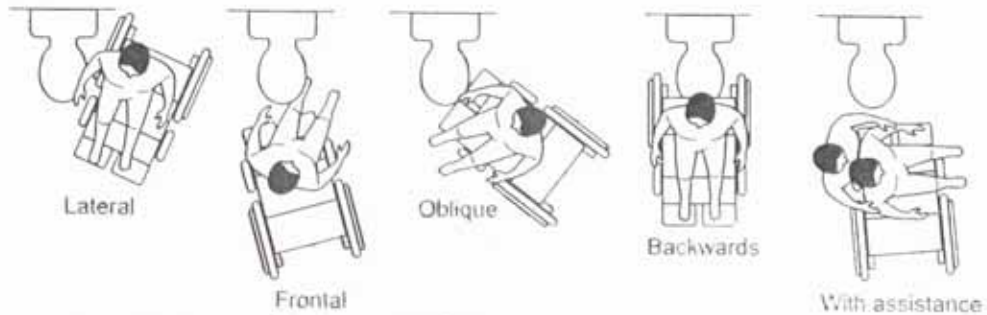


Fig 7.108 Dimensions for those in wheelchairs, when using ablution facilities. (Adler 1999:3-10)

Disabled Facilities

The building is designed to be, not only accessible for the disabled, but to be comfortable too. Ramps provide a means of transversing small level differences, while lifts transport the disabled from floor to floor. There is also a disabled toilet facility on the ground floor of both the Northern and Southern blocks of the 'i-hub' building.

See Fig. 7.107 to Fig 7.112 for the method's and dimensions used in ensuring that the 'i-hub' building is able to accommodate those who are disabled.

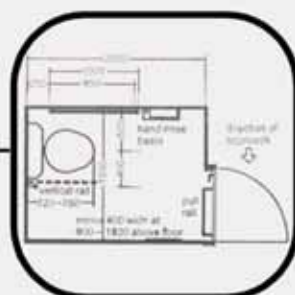


Fig 7.109 Dimensions for disabled ablution facilities. (Adler 1999:3-10)

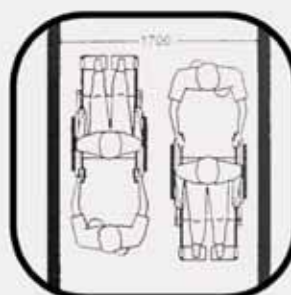


Fig 7.110 Passing distances for wheelchairs. (Adler 1999:3-10)

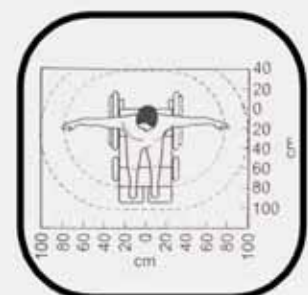


Fig 7.111 Reaching distances for those in wheelchairs. (Adler 1999:3-10)

EXCLUSIVE BOOKS

POSSIBLE TENANTS

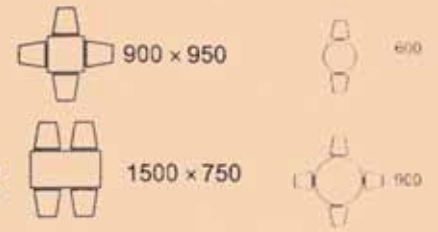
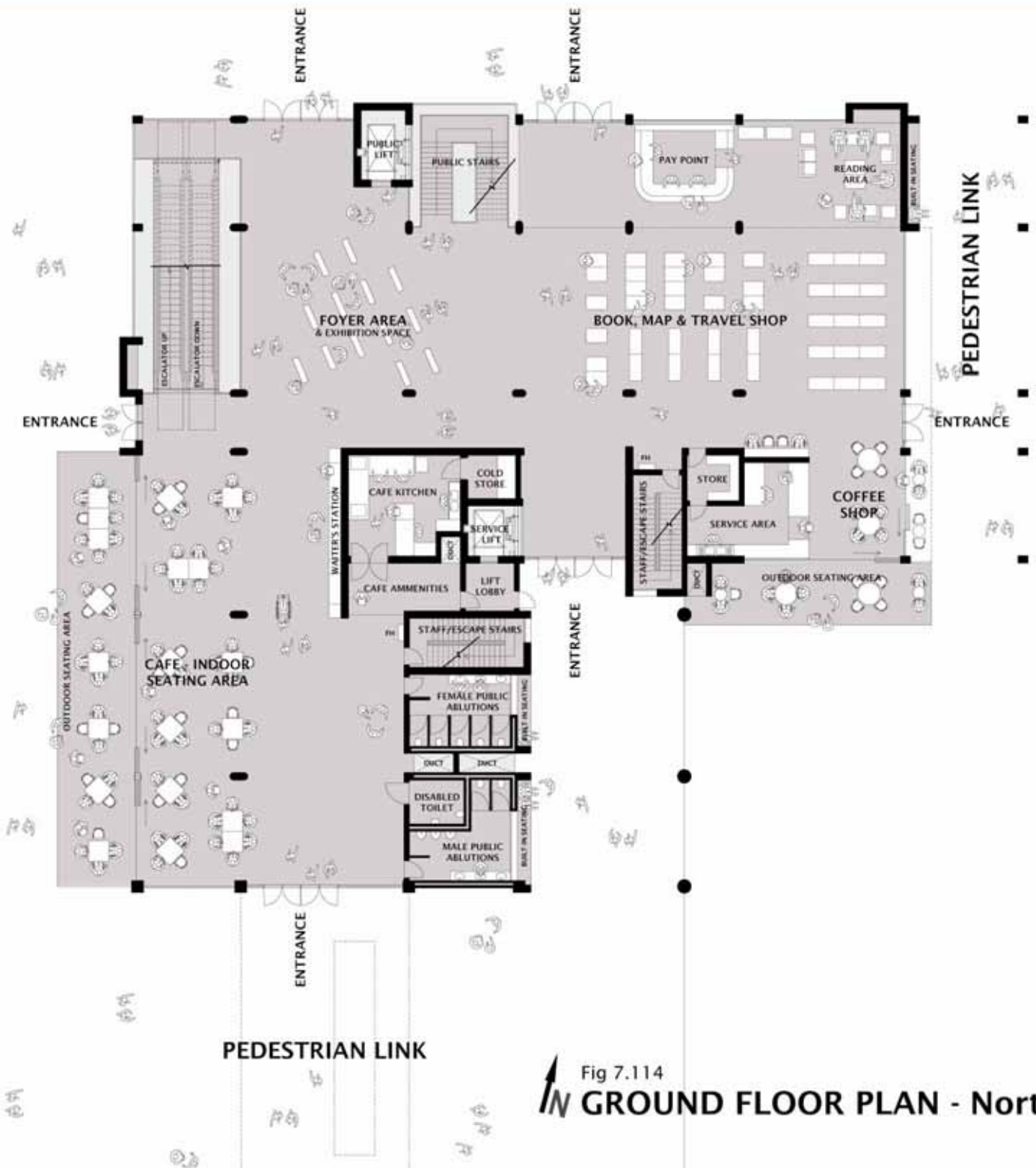
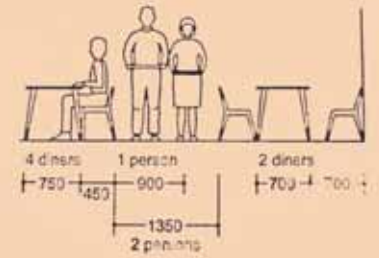


Fig 7.113 Table dimensions for comfortable circulation. (Adler 1999:18-7)



PEDESTRIAN LINK

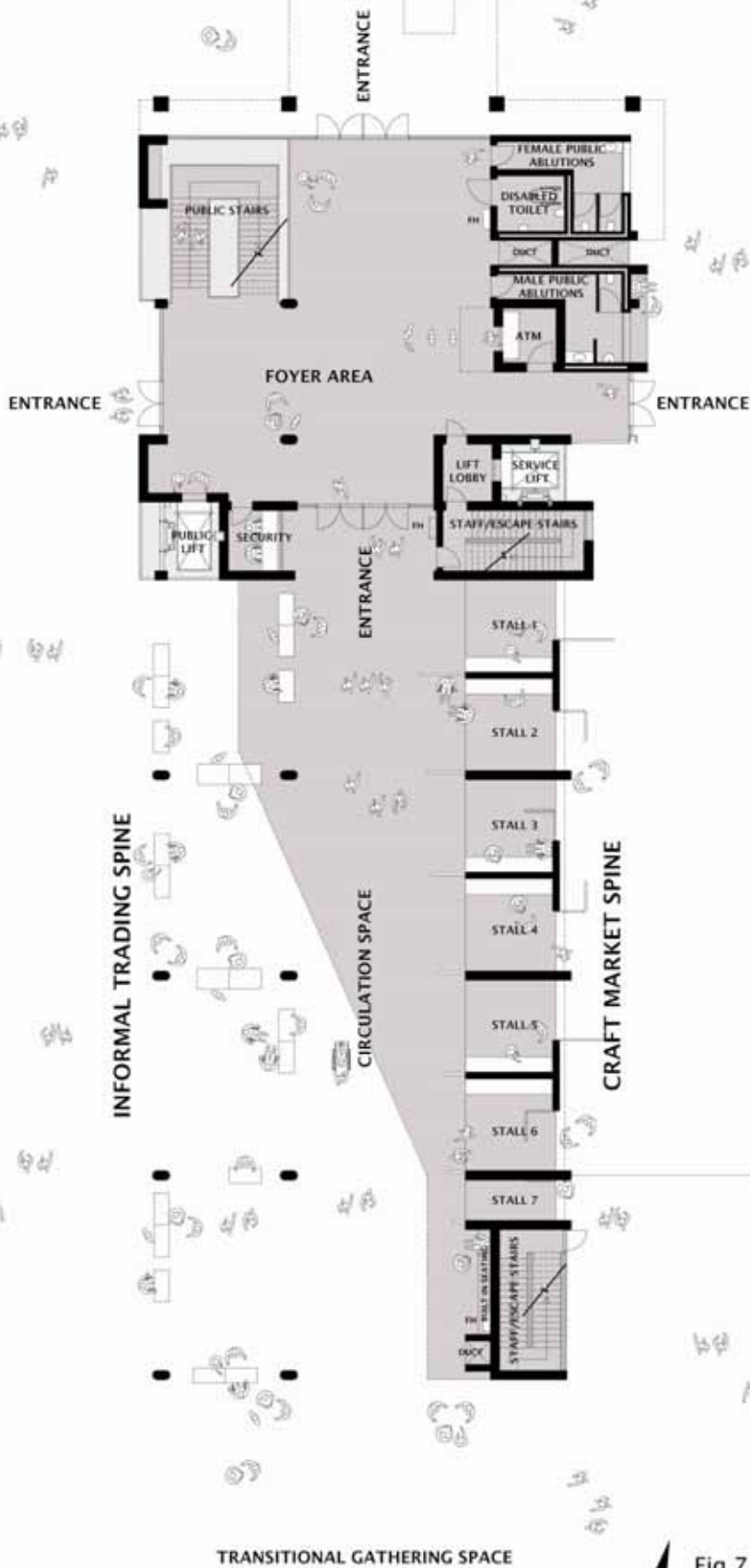


Fig 7.119
GROUND FLOOR PLAN - South



Fig 7.115 Informal trade at Pretoria Station. (photo by author)



Fig 7.116 Informal trade at Pretoria Station. (photo by author)



Fig 7.117 Informal trade at Pretoria Station. (photo by author)



Fig 7.118 Informal trade at Pretoria Station. (photo by author)

Concept Development



Fig 7.120
FIRST FLOOR PLAN
 Scale 1:500

- Information Counter Area
- Foyer & Exhibition Space
- Mezzanine Level
- Internet Communication Facilities
- Ablutions
- Vertical Circulation
- Restaurant & Ammenities
- Pedestrian Links & Covered Walkways
- Double Volumes
- Ducts

See pg. 129 for detailed layout of the First Floor's Northern block.

See pg. 130 for detailed layout of the First Floor's Southern block.

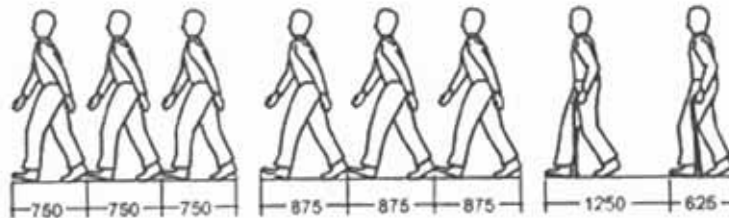


Fig 7.121 shows the space required for people on the move. (Adler 1999:2-9)

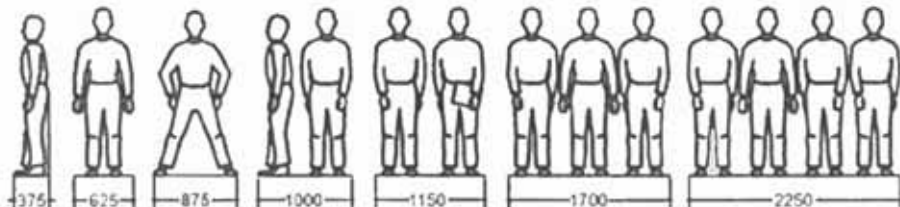


Fig 7.122 shows the space required for people when standing. (Adler 1999:2-9)

Due to the extensive amount of circulation occurring, particularly on the ground and first floor levels of the 'i-hub' building, the above diagrams aided in designing an environment in which people could move, stand, wait and sit, with ease.

Internet Connectivity

The 'i-hub's internet communication facility will provide computer points equipped with a fast and efficient ADSL internet connection, as well as a wireless hot-spot for users with their own laptops.

A small coffee shop and vending amenities are provided for those in need of a quick refreshment.



Fig 7.123 Internet Hotspot example. (www.cafesuite.com)



Fig 7.124 Internet Hotspot example. (www.travelwebshots.com)



Fig 7.125 Vending point example. (www.gamespot.com)



Fig 7.126 Circulation space required in offices. (Neufert 1970)



Fig 7.127 Circulation space required in offices. (Neufert 1970)



Fig 7.128 Circulation space required in offices. (Neufert 1970)

Information Counters

The Tourism Information Centre will be housed in this part of the building. Tourist will now however, be able to source information, do bookings and plan excursions from this point. They will also benefit from a tranquil environment in which to relax while making decisions and planning their journey further.

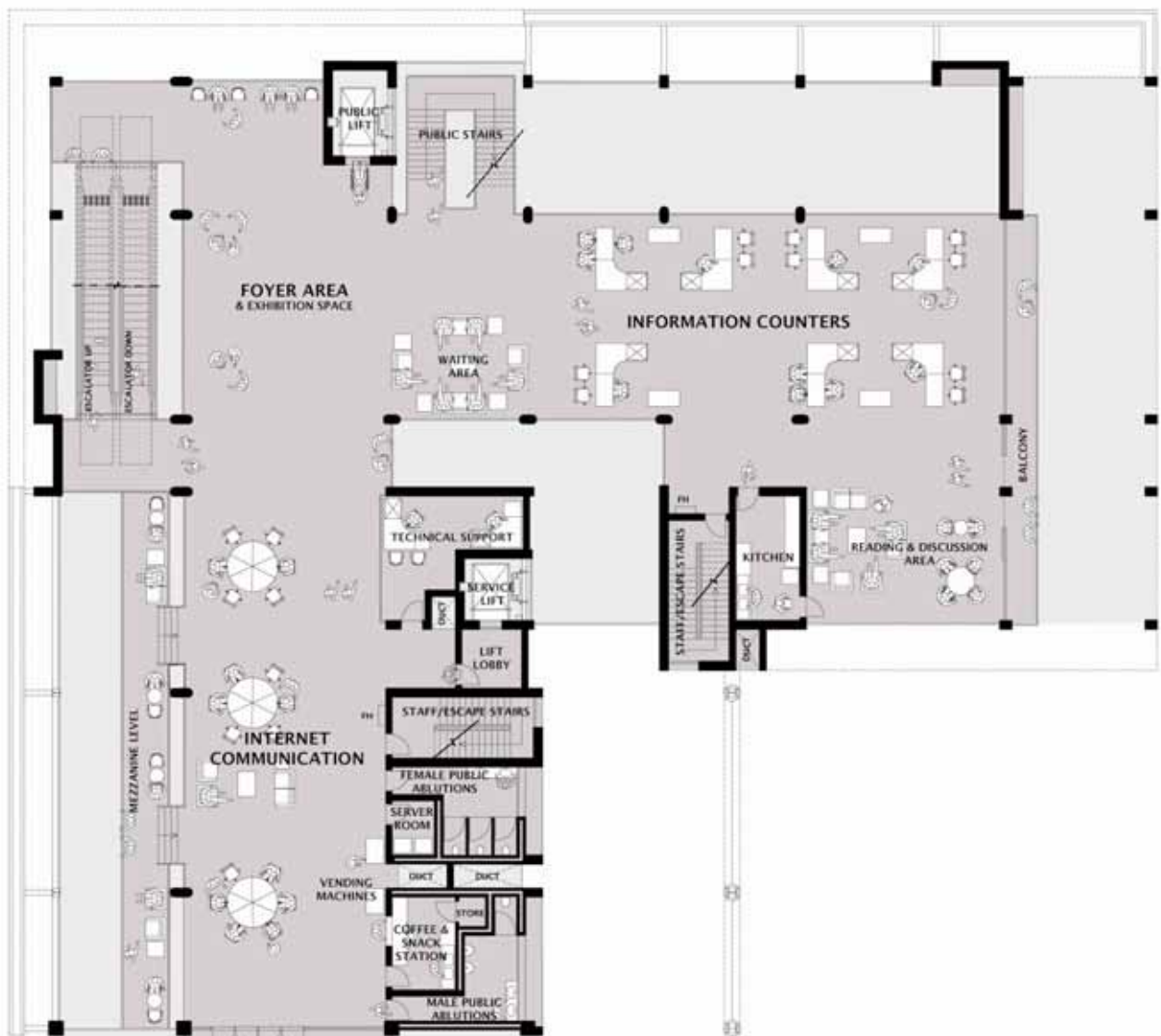


Fig 7.129
FIRST FLOOR PLAN - North

The 'i-hub' Restaurant

A possible tenant for the restaurant space is the *MOYO* franchise, currently found around the country. This distinctly South African restaurant is looking to take up residence in Pretoria. It serves as a destination restaurant and would greatly contribute to the environment that the 'i-hub' is striving to create.



Fig 7.130 U-Shaka's Moyo in Durban. (www.moyo.co.za)



Fig 7.131 An interior view of the Moyo in Melrose Arch, Johannesburg. (www.moyo.co.za)



Fig 7.132 An interior view of the Moyo in Melrose Arch, Johannesburg. (www.moyo.co.za)

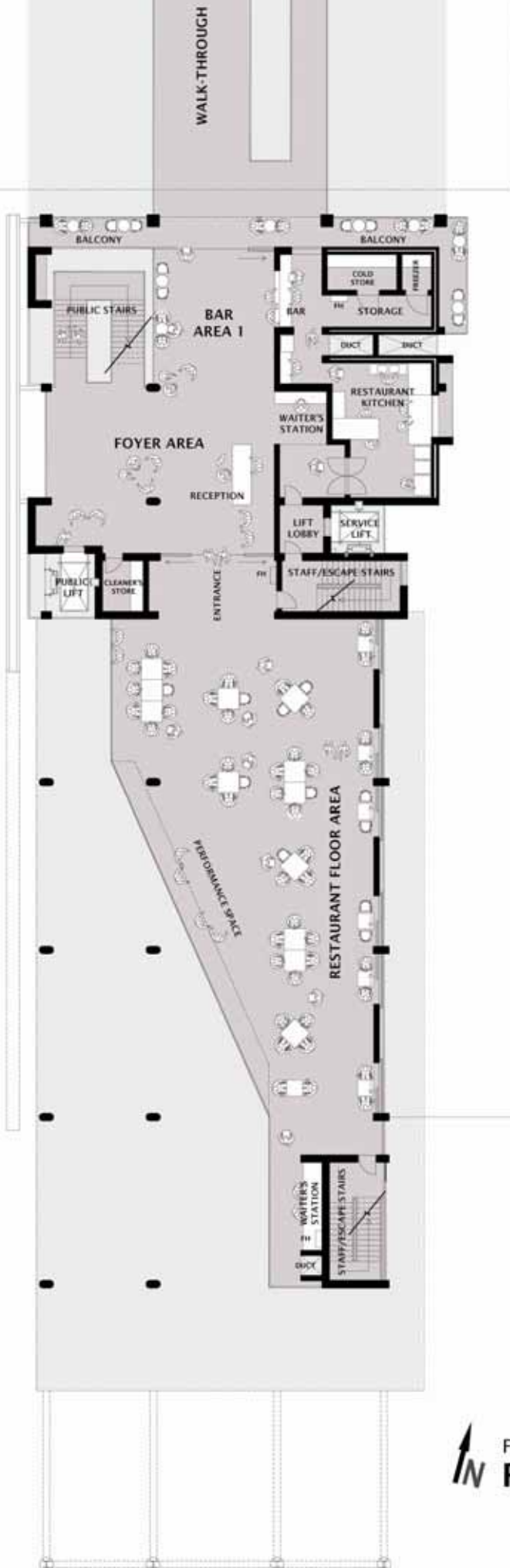


Fig 7.133
FIRST FLOOR PLAN - South



Fig 7.134
 **SECOND FLOOR PLAN**
 Scale 1:500

- Office Space & Ammenities
- Foyer & Exhibition Space
- Conference Facilities
- Mezzanine Level
- Auditorium
- Ablutions
- Vertical Circulation
- Restaurant Foyer
- Restaurant & Ammenities
- Double Volume Space
- Ducts

See pg. 133 for detailed layout of the Second Floor's Northern block.

See pg. 134 for detailed layout of the Second Floor's Southern block.

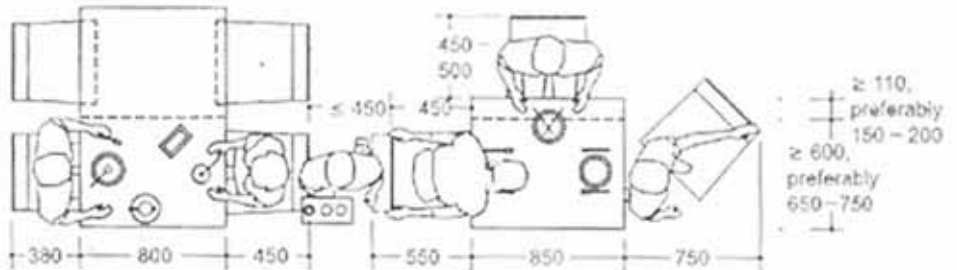


Fig 7.135 shows comfortable passing spaces (plan view) in a restaurant. (Adler 1999:18-5)

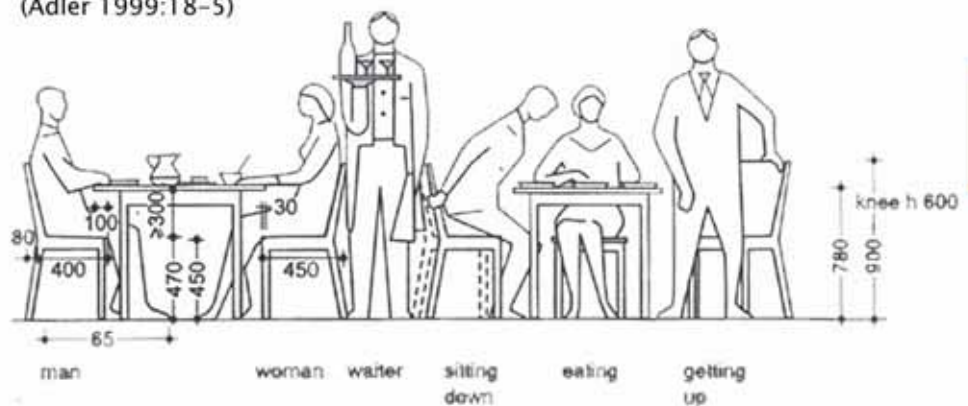


Fig 7.136 shows comfortable passing spaces (side view) in a restaurant. (Adler 1999:18-5)

Designing the spaces required for a large, up-market restaurant was aided by site visits, along with the diagrams (Fig 7.135 and Fig 7.136) above. These diagrams indicate the amount of space needed for efficient circulation within a restaurant, so as to ensure user comfort at all times.

Fig 7.137 to Fig 7.139 below show the heights at which shelves and counters are to be positioned, particularly in store, bar, service and kitchen areas.

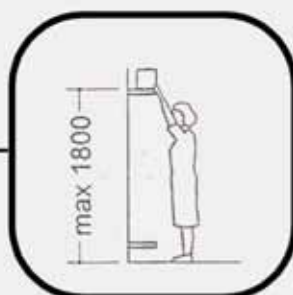


Fig 7.137 shows the maximum reach possible for the average woman. (Adler 1999:18-9)



Fig 7.138 shows the position of a shelf on eye level. (Adler 1999:18-9)



Fig 7.139 shows the position of a shelf when required to bend. (Adler 1999:18-9)



Fig 7.140 (www.bris.co.uk)



Fig 7.141 (www.eco.co.uk)

Conference Facilities

The 'i-hub' provides generous spaces in which to hold events and conferences. Circulation spaces leading to the building's main auditorium can be made into areas for reception and entertaining before or after using the auditorium. The presence of these facilities renders the building, not only useful to its daily inhabitants, but also to many outside organisations wishing to make the most of its facilities.

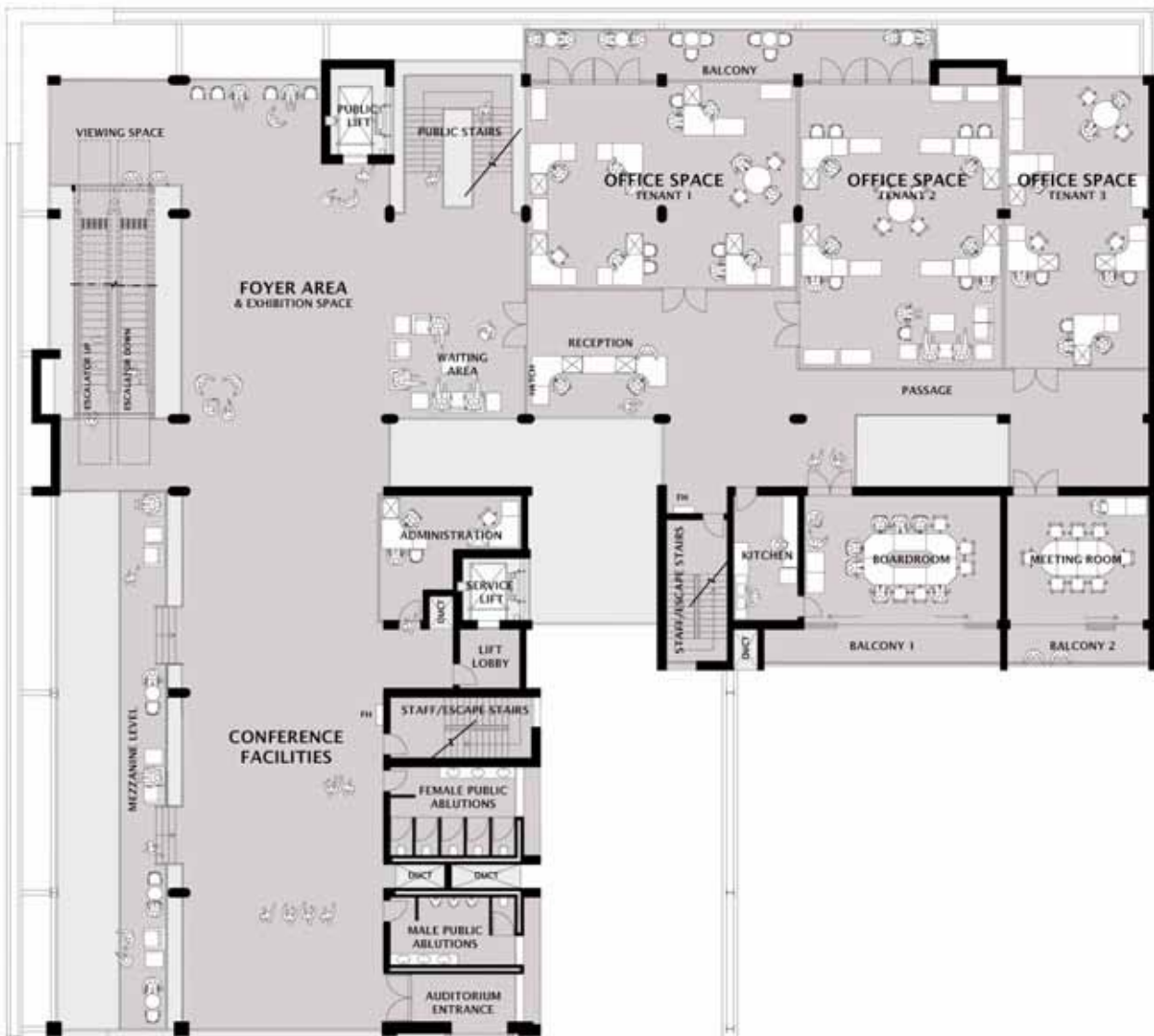
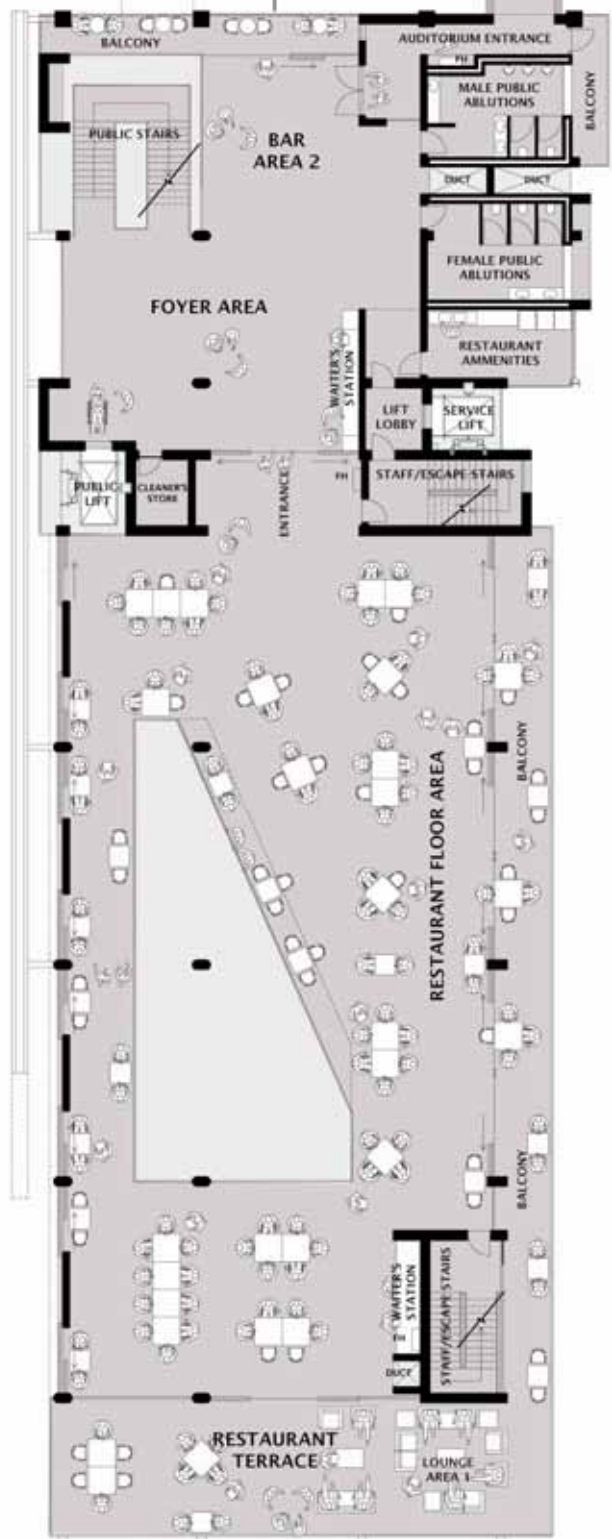
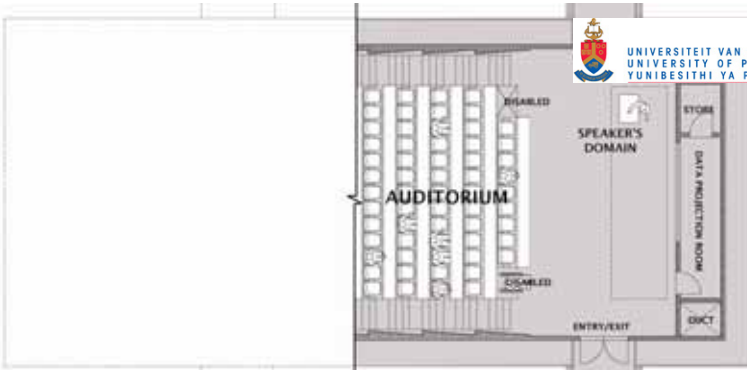


Fig 7.142
SECOND FLOOR PLAN - North



The diagrams below indicate the size of spaces found in the restaurant's kitchen and other 'back-of-house' amenities. It is important that the use of limited space is optimised by practical and efficient planning.

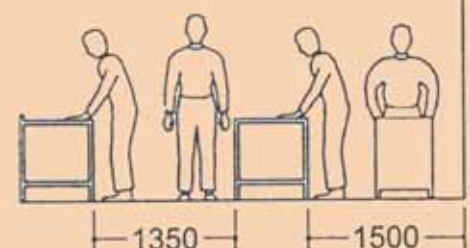


Fig 7.143 Circulation spaces in the kitchen. (Adler 1999:18-9)

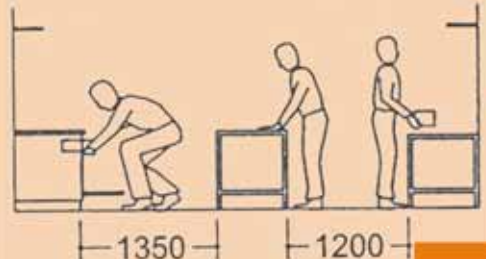


Fig 7.144 Circulation spaces in the kitchen. (Adler 1999:18-9)

Fig 7.145 SECOND FLOOR PLAN - South



Fig 7.146
 **THIRD FLOOR PLAN**
 Scale 1:500

- Office Space & Ammenities
- Foyer & Exhibition Space
- Conference Facilities
- Mezzanine Level
- Auditorium
- Ablutions
- Vertical Circulation
- Restaurant Foyer
- Restaurant & Ammenities
- Accessible Roof
- Double Volume Space
- Ducts

See pg. 137 for detailed layout of the Ground Floor's Northern block.

See pg. 138 for detailed layout of the Ground Floor's Southern block.

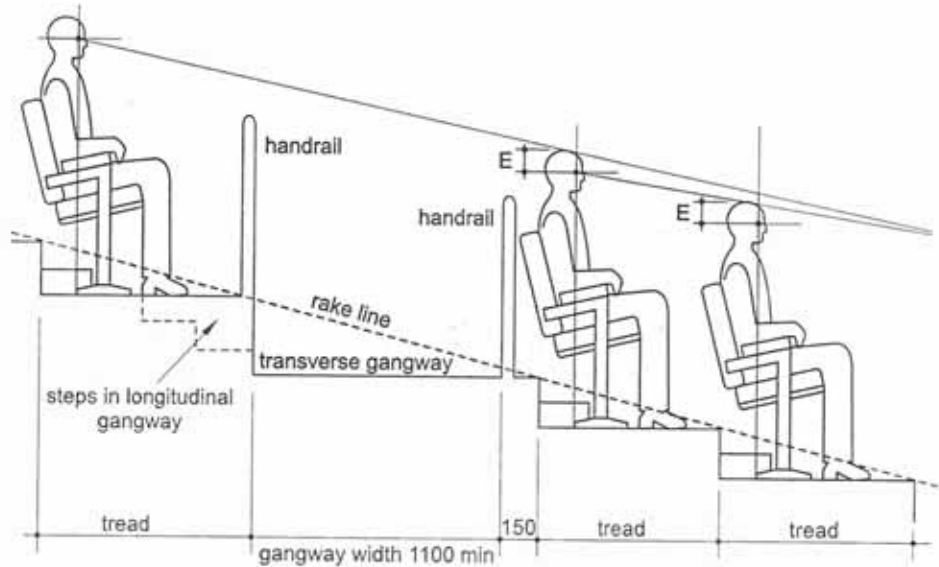


Fig 7.147 shows the sightlines and rake line of the auditorium. (Adler 1999:20-8)

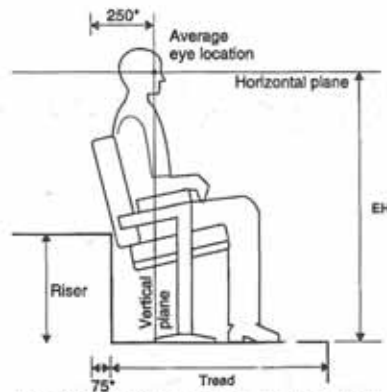


Fig 7.148 shows the relationship between vertical and horizontal planes within the auditorium. (Adler 1999:20-8)

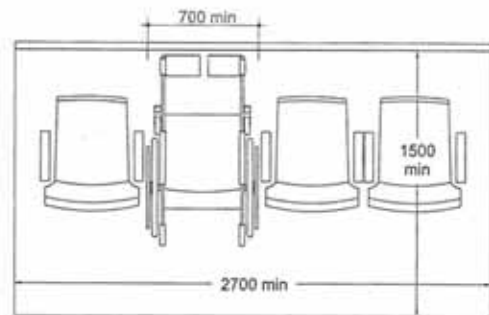


Fig 7.149 shows the space to be provided for wheelchair users. (Adler 1999:20-8)

The 'i-hub' Auditorium

The auditorium space is specifically designed with comfort, clear sight lines and good audibility in mind. The space has 103 fixed seats and caters for 2 wheelchair users.

The auditorium can be used for giving informative talks to tourist groups, as a lecture hall for local educational institutions, as well as a venue that can be hired out to outside organisations. Ablutions cater for the auditorium when at capacity, ensuring that there are sufficient facilities for those using the auditorium space and conference facilities attached.

Fig 7.147 to Fig 7.153 show the images that guided the design of the 'i-hub' auditorium.

DIMENSIONS OF AUDITORIUM SEATS

Dimension	Description	Minimum	Maximum	Drawn as
A	Overall seat depth	600mm	720mm	650mm
B	Tipped seat depth (same as length of arm)	425	500	450
C	Seatway (unobstructed vertical space between rows)	305		400
D	Back-to-back seat spacing	760		850
E	Seat width for seats with arms	500	750	525
	Seat width for seats without arms	450		
F	Armrest width	50		50
G	Seat height	430	450	440
H	Armrest height	600		600
I	Seatback height	800	850	800
J	Seat inclination from horizontal	7°	9°	7°
K	Back inclination from vertical	15°	20°	15°

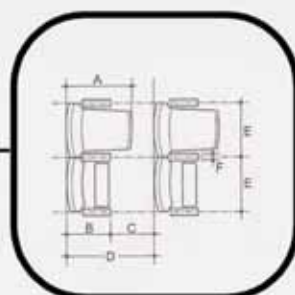


Fig 7.150 Seat dimensions in plan - refer to Table 1. (Adler 1999:20-8)



Fig 7.151 Seat dimensions in elevation - refer to Table 1. (Adler 1999:20-8)

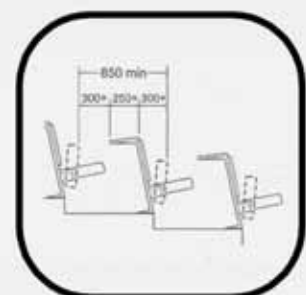


Fig 7.152 Seats and desk dimensions in elevation - refer to Table 1. (Adler 1999:20-8)



Fig 7.153 Typical office furniture. (BFS Africa Catalogue)



Fig 7.154 Typical meeting room furniture. (BFS Africa Catalogue)

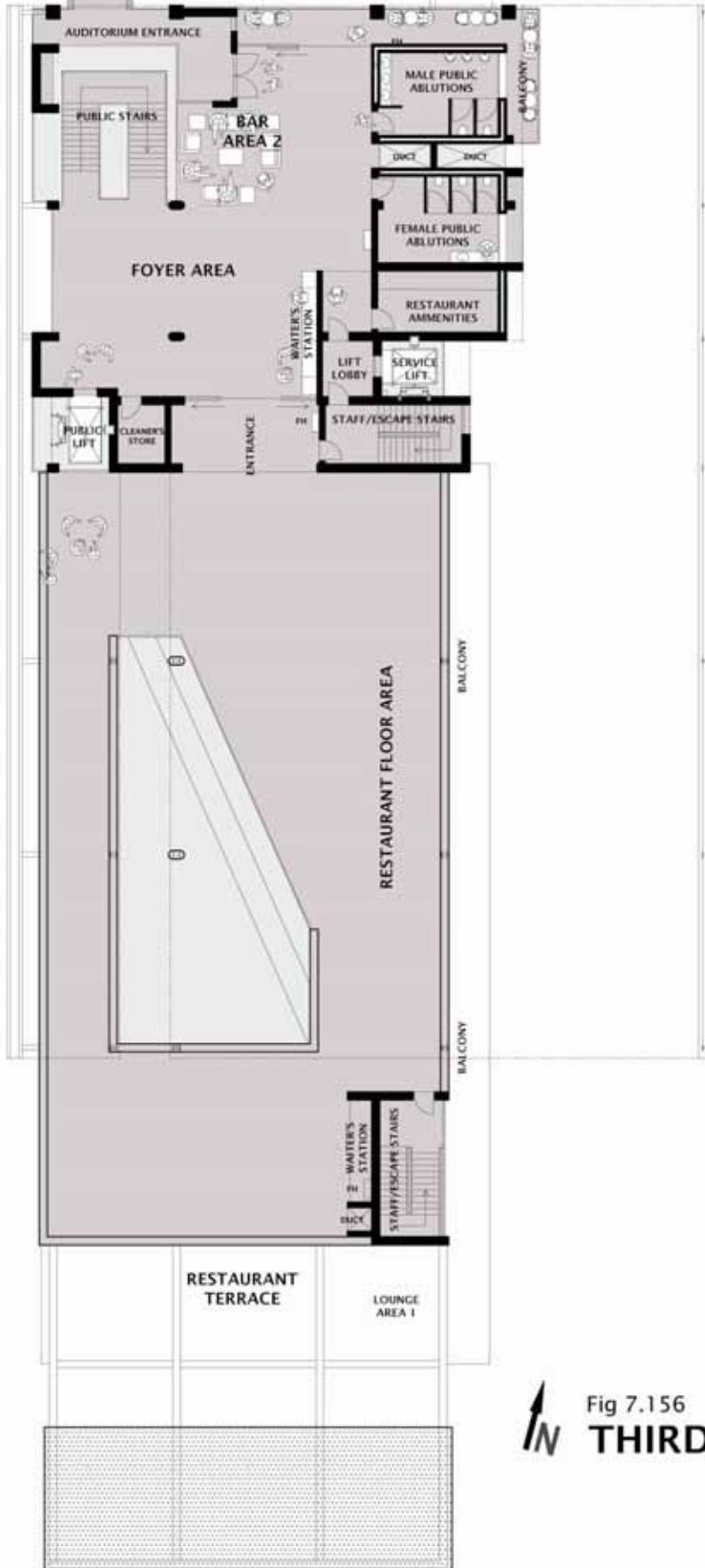
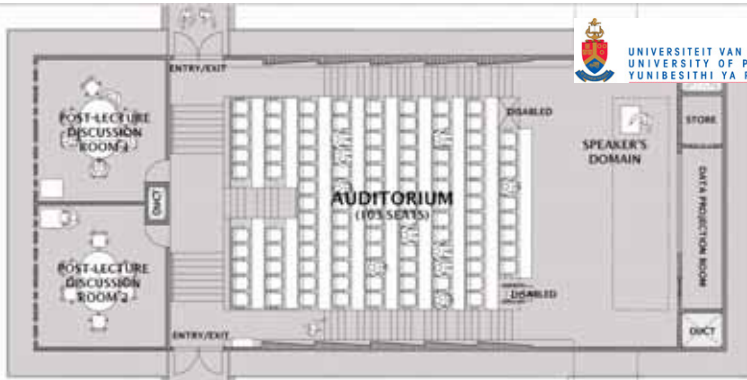
Office Areas

The 'i-hub' office spaces are designed to maximise adaptability and flexibility over time. Partition walls are used to divide the spaces, therefore as time passes and tenants change, so the spaces change too.

Both office floors have a small kitchen to serve the staff, as well as boardroom and meeting room facilities, that are shared by the tenants on each floor. The office spaces open up to the outdoors via balconies on both the Northern and the Southern facades.



Fig 1.55
THIRD FLOOR PLAN - North



Accessible Roof Area

The flat concrete roof above the restaurant, is not just a vantage point from which to view the Pretoria Stations context. It also acts as a place into which the functions of the building are able to expand. The restaurant can use the outdoor space for functions, it can be used as venue for outdoor community meetings, as well as craft-related workshops. The roof top can house a market on certain intervals throughout the month. It is a versatile space that is able to cater for a variety of different needs.

Concept Development



Fig 7.156
THIRD FLOOR PLAN - South

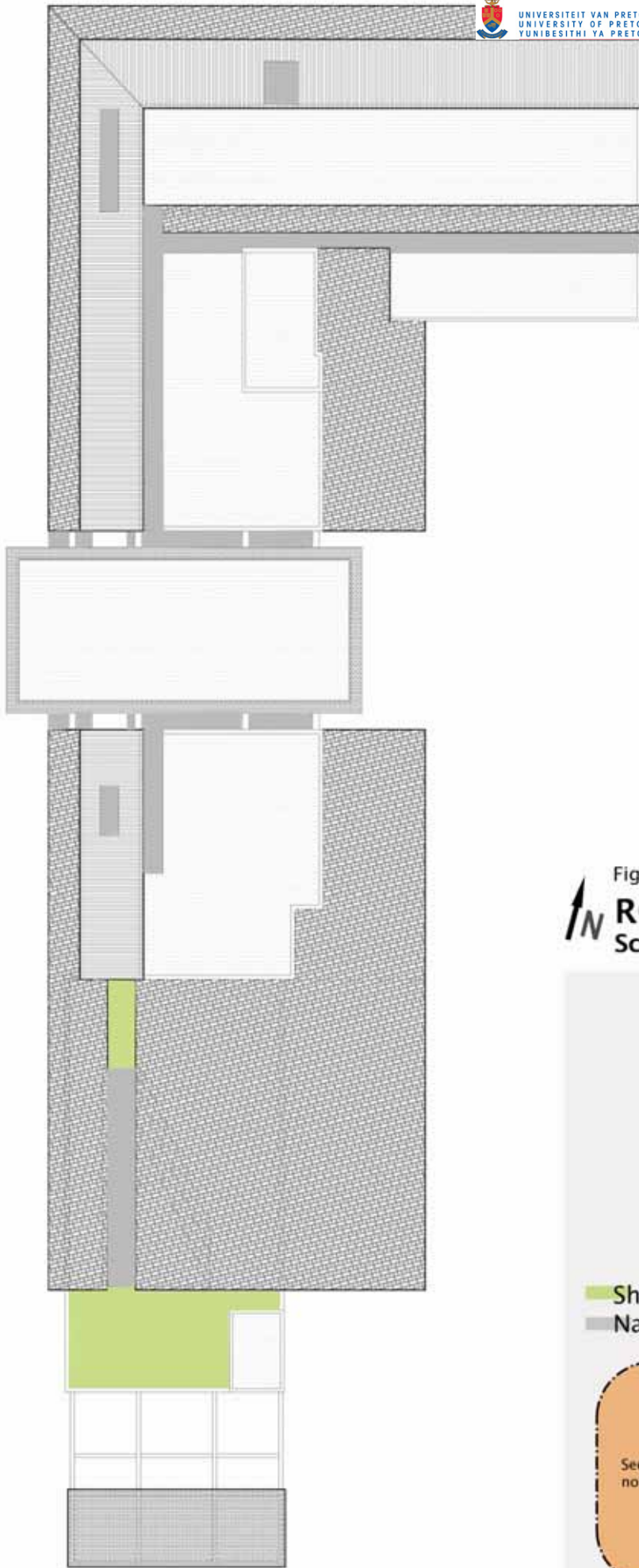


Fig 7.157
ROOF PLAN
Scale 1:500

Shaded Accessible Roof Area
Natural Light Penetration

See the adjacent page for notes on the roof plan.

The roof of the 'i-hub' building consists of a flat concrete slab, as well as a light steel structure. These elements will be discussed in detail in the chapter that follows.

The flat concrete roof holds much of the building's service equipment:

1. Solar panels for the air-conditioning system,
2. Solar panels for the water heating system, as well as
3. Roof pack air-conditioning units for the split air-conditioning systems of the offices and auditorium.

Skylights are also incorporated into the roof structure to allow the penetration of natural light into the building. These are evident on Fig 7.157 adjacent.



Fig 7.158 An example of a skylight. (www.rooflite.com)



Fig 7.159 An example of a skylight. (www.inhabitat.com)



Fig 7.160 An example of an air-conditioning roof pack unit. (www.daikin.com)

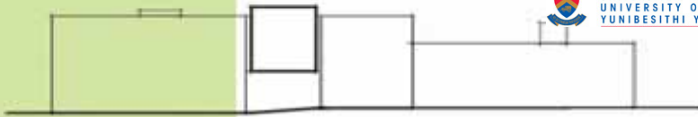


Fig 7.161 massing

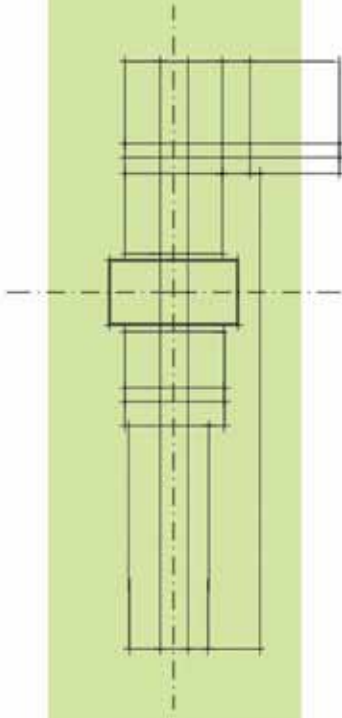


Fig 7.162 parti

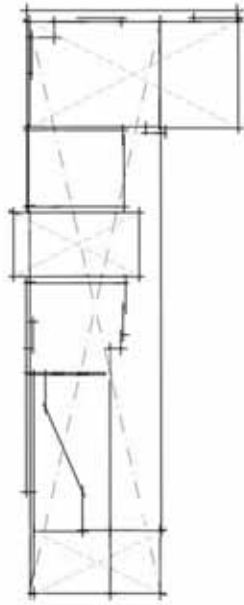


Fig 7.163 geometry

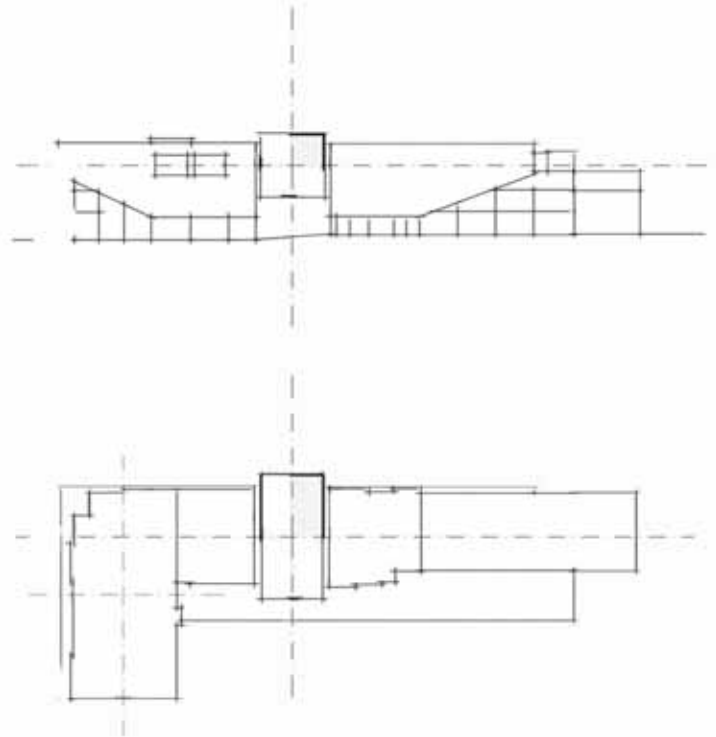


Fig 7.164 symmetry & balance

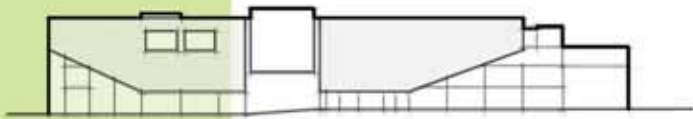


Fig 7.165 expressed in elevation

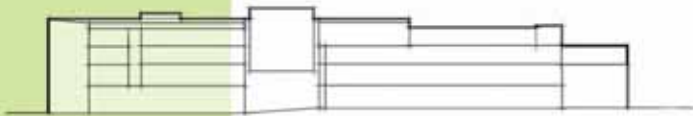


Fig 7.166
plan to section

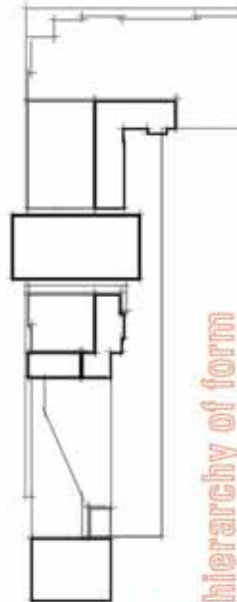
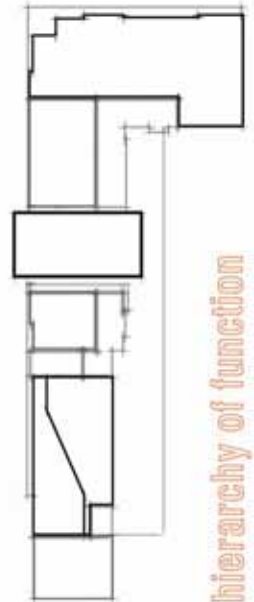


Fig 7.167

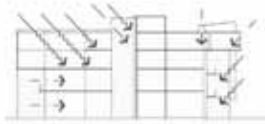
hierarchy of form



hierarchy of function

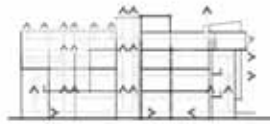
7.9 Diagrammatic Analysis

An analysis of the design has been performed in order to demonstrate the essence of the key concepts that make up the design. This analysis has been conducted in line with those done by Roger H Clark and Michael Pause in the book "Precedents in Architecture" (1985). This analysis aids in identifying both strong and weak points in the design concept and allowing space for adaptation and refinement of the design accordingly. This diagrammatic exploration has proven essential with regards to testing the final design proposal, before beginning technically refining the project.



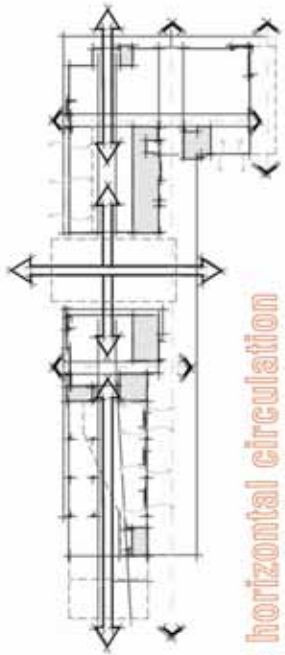
natural light

Fig 7.168



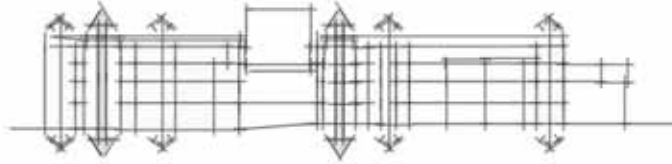
natural ventilation

Fig 7.169



horizontal circulation

Fig 7.171



vertical circulation

Fig 7.170

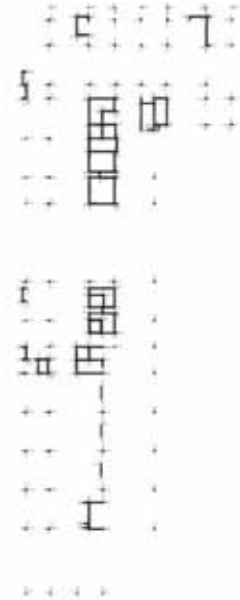
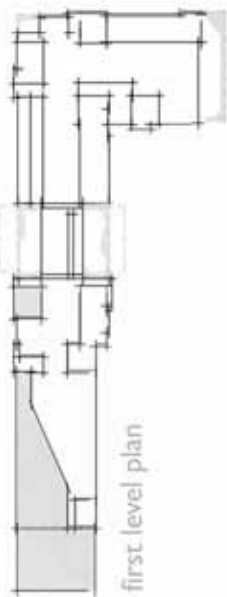


Fig 7.172 structure



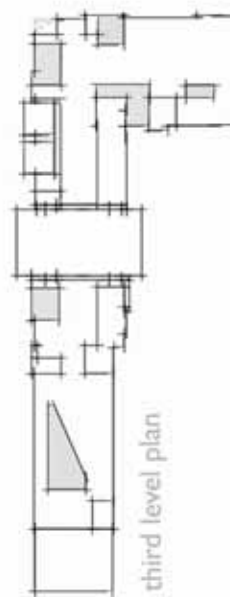
ground level plan



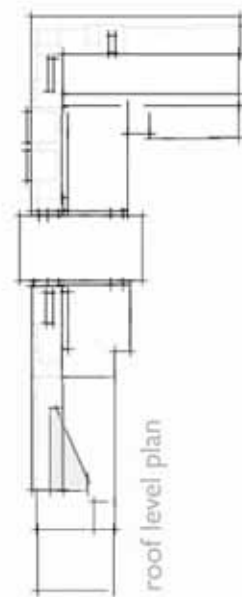
first level plan



second level plan



third level plan



roof level plan

solids & voids

Fig 7.173

7.10 Conclusion

The 'i-hub' building's aesthetic and functional qualities have now been comprehensively explained. The design is now developed and the technical resolution of many of its aspects can now take place.