



# BASELINE CRITERIA 5/

**BASELINE CRITERIA 5/**  
Contextual Response  
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Urban Functions

Building Functions  
Programme  
Accommodation Schedule

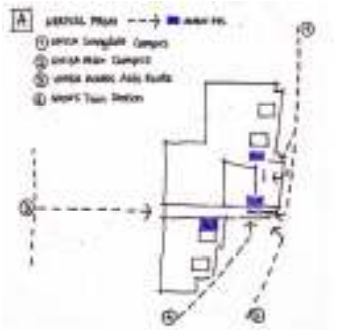
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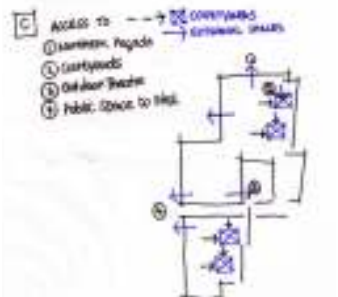
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**'In a Metaphysical viewpoint, ability to design is one of the most precious qualities bestowed upon mankind. Building design is a very compressive creative activity that encompasses all the dimensions of human endeavour, including humanities, art, sciences, technology and time'. [Mathur 2004:128]**

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## BASELINE CRITERIA 5/ Contextual Response 5.1/

### Contextual Response 5.1/

The proposed precinct for development needs to incorporate aspects of catering for the general community, the students of UNISA, the city residents and the visitors of Pretoria. Essentially Elandsport Road is an Entry threshold to the CBD on the periphery of the city to the South. Muckleneuk is the residential area located on higher ground viewing the city from the south and edged by the campus's of UNISA. UNISA Main Campus sits as a landmark on Bourkes Hill and is visible from a long distance as one moves towards Pretoria along the N14 from Johannesburg. Visual connection with UNISA is cut as one enters onto Elandsport road from Fountain's Circle resulting in a disorientation of entry into the city. Linkage between UNISA's main campus and it's main form of access from Elandsport Road via Ridge Road is currently under development from the University with a proposed new Entrance and Visitors Centre.

Considering the threshold of entry is used by many visitors to Pretoria it would be appropriate to line the edges of Elandsport Road with commercial and active use buildings to take advantage of the passing activity and buffer the residential area of Muckleneuk. Currently Elandsport Road is edged by Residential houses , UNISA student accommodation blocks, undeveloped land and Mears Train Station which appears to be unsafe and underutilized due to it's unkempt state.

The location of a train station, vehicular access and current pedestrian routes by students moving along Elandsport Road from UNISA's Main Campus and Sunny Side campus call for the attention of a transport interchange which already has the infrastructure but is not capitalized on at this convergence of activity. There even exists an informal pick-up-and-drop off area which is mainly used by informal laborers awaiting temporary work from locals whom stop with their utility vehicles to pick up several workers at a time. Access to this economic opportunity hub is possible already but it can be available to many more people if the following precinct is developed to accommodate activity and provide an environment which is truly a place and a threshold where people can meet and gain access to opportunity.

Opportunity or exposure can even be simply visual, as one passes by in a car. A burst of information expressive at a point of entry where scenery is changing from landscape to urban fabric is a prime location. The process of change can be communicated to create a connected sequence of arrival. Display in a strategic location can have maximum impact in the smallest of quantities. Take for example any building, the entrance and display board is positioned for the first few steps of any visitor into the building in order to communicate information required at the precise moment of arrival. Such a facility can be provided along Elandsport Road and can be incorporated with the University of South Africa in providing a continued canvas from the already expressive monument of UNISA main campus and introducing people to Pretoria. The process of creating an urban fabric which has a closer scale to individuals passing it and really interacting with it to carry them into the CBD of Pretoria.



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### Contextual Response 5.1/ Arrival Corridor +Threshold

Transport Interchange  
Connecting Element of City  
Fabric

Display Case



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# BASELINE CRITERIA 5/ Urban Functions 5.2/

## Urban Functions 5.2/

The proposed Urban functions are those of catering for movement, meeting, interacting and changing direction or modes of transport as shown in illustration 5/016.

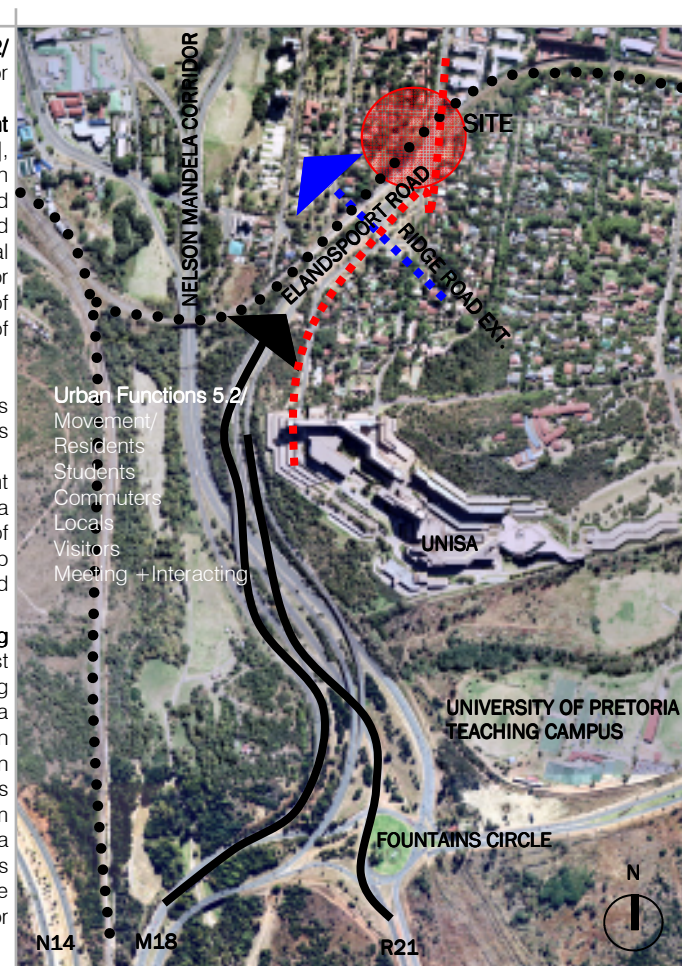
### Movement

Modes of transport common to the following precinct include pedestrian [ - - - - ], vehicular [ ——— ], train [ •••• ], bus and taxi. Essentially Elandsport Road and Mears Street predominantly cater for vehicular movement with pedestrian movement occurring haphazardly along side. The stream of traffic entering off of the N14, R21 and M18 is initially slowed down by Fountains Circle and a traffic light intersection between Elandsport Road becoming Mears Street and Ridge Road, providing a pedestrian crossing. Elandsport Road also has an informal open area of land, used as a pick-up-and-drop-off area for outward bound traffic however is not catered for nor designated as legal stopping point for traffic. Development in conjunction with the Gautrain will be the closing of Willow Road and the extension of Ridge Road [ - - - - ] across Elandsport Road to provide for traffic to turn off of Elandsport Road towards the CBD.

The three categories of users are those of business commuters moving into and out of the city by car, students moving to and from UNISA's Upper Campus and Sunnyside Campus, residents of Muckleneuk moving towards work in the business areas of Pretoria and temporary job seeking individuals arriving by train from further a field. Students are essentially commuting by foot or minibus taxi along Elandsport Road and the UNISA movement Axis along Preller Street running North South between campuses. Vehicular movement is that of visitors to Pretoria predominantly whom require a medium speed link into the CBD of Pretoria via Sunnyside. The sequence of movement for train users whom make use of Mears Train station seems to be that of the arrival of temporary job seeking individuals to the precinct whom frequent the Elandsport Road's pick-up-and-drop-off area until picked up by an employee driving out of Pretoria.

### Meeting, + Interacting

Elandsport Road does not hold itself as a grand meeting place due to it's nature which is dominated by a fast moving stream of traffic into the city. To attempt to hinder this movement is not the intention at all with the following dissertation. To provide a purely pedestrian environment would be ideal but re-routing traffic does not solve a social problem which requires the integration of people to create a dynamic complex city which is what real urban life should be about. The intention is to define distinct channels of activity and encourage the interaction between activities to happen within thresholds between channels. To the South of Elandsport Road there does exist a green space with trees which create a green buffer for the residents of Muckleneuk. Residents refrain from using it due to it's great exposure to traffic i.e. visitors to Pretoria [Total strangers] but the students do use it as a stopping and shady point on route. The ideal location for meeting places are those where people change modes of transport i.e. latching off of Mears Train Station. An attempt to locate social spaces which are connected to the context and in a sense informs buildings as much as they are informed by it would be appropriate. Allowing for opportunities such as interaction caters for a distinct city living quality which emphasises the advantages of a city.



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# BASELINE CRITERIA 5/ Building Functions 5.3/

## Building Functions 5.3/ Education

The proposed facility needs to accommodate aspects which facilitate the building as a venue for education, the production of media and image and the display of media and image through audio visual venues, display screens and gallery spaces.

The functioning of an educational facility revolves around the circulation of students whom make use of various components of the building such as lecture venues, workshops, library facilities, internet / media zones and various services which need to accommodate large numbers of users. Relief spaces or social spaces need to allow students to congregate and gather before entering into venues so as to encourage the concept of working inside and relaxing outside. Thresholds become important zones of activity and enable the defining of space in order to differentiate between inside and outside. The sequence of engagement with the building is expressed in the diagrams below. 5/ 018 [A] Indicates student movement patterns and access to the building. 5/ 019 [B] Indicates the movement of students within the building. 5/ 020 [C] Indicates the spaces connected to education venues providing relief spaces, gathering spaces and ultimately access to the outside.

## Production

The functioning of a basic production base for media and image should allow the opportunity for students currently studying to interact with the business world and to obtain direct practical experience. This could be envisaged in the form of a small radio broadcasting venue or recording studios complemented by necessary office space required for general advertising studios. Such products could be that of advertising bill boards, poster displays or radio / music releases. The intention would be provide a starting opportunity into the field of media and image..

## Display Venues

The functioning of a display venue can be seen as expressing the outcomes of such an education, and production facility so as to provide a canvas of communication to the city context and passing traffic. 'Display' one can see as being a form of entertainment. Media and image allows for different forms of display such as cinema entertainment, external screen display, gallery display cases, outdoor theatres at night and the opportunity for projection onto surfaces or simply within space. 5/ 021 [A] Locates venues for entertainment and 5/ 022 [B] reveals opportunities for display surfaces as a result of responding to the context.

## Display Screens

Technology is the generator of innovation and allows for various experiences. Environments which can grasp and play with the changing forms of technology hold the opportunity to stimulate people and incorporate more of a virtual experience deeply grounded in a real world. The need to escape would not be necessary because technology is able to enhance our real environments.

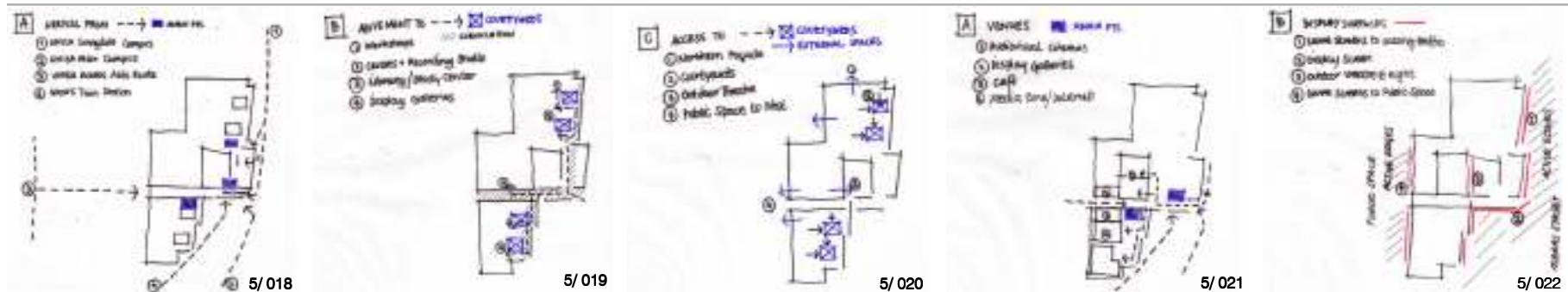
## Building Functions 5.3/

Education

Production

Display Venue

Technology



### Programme 5.4/

The intention is to provide a building which doubles up on it's facilities in order to cater for both Education and Commercial purposes whilst being clustered together around the concepts of 'media' and 'image'. These themes are the drivers to cater for the present students of UNISA as well as to communicate with individuals passing by and to encompass the undeniable truth that digital culture and technology is very much a part of our lives. The strategic location of the facility further supports the opportunity for optimising edges for display to transport corridors as individuals move into and out of the city every day. Change and fast change is a dynamic of our current culture. Screen display allows for this as apposed to sculpture or art work. Indeed as the inner city thrives and people stop commuting such great distances as they do now, the function of the building starts to become more of a canvas of orientation and communication for individuals visiting the city, so as to provide an introduction to the city. As society changes, activities and lifestyles change and thus environments should accommodate for this.

The experience of architecture should not simply involve only the physical movement into a building. Ideally with this project the experience of architecture can in fact be that of just passing it. Whereby a building becomes more than just a form but a canvas which can express architectural elements and thus allows passer bys to understand the building, it's functions, the activities which are held within it and allow for connection with the users whom inhabit the building. Legibility from form needs to guide a visitor to the area and then eventually the building.

### Order

The process of arrival for a visitor needs to be structured in order to provide a logical process of physically interacting with the building. The distinct location of the entrance helps obtain the necessary guidance to the different parts of the rest of the building. Facilities which will have large numbers of new visitors need to be able to communicate their layout simply. Communication through tectonics and scale provides the architectural language which both users and passing individuals can understand through experience. The definitions of a threshold emphasise the transition from one space to another and communicates a process of experience.

### Threshold

Vertical Connection deals with Sun light, sky and openness to the environment and in part the process of defining the difference between inside and outside. The process of creating enclosure and safety from the elements. Horizontal connection seems deeply rooted in the connection of inside to outside through transparent materials such as windows. Vertical connection however is still deeply affected by gravity whereby roofs are invariably solid and define the inside from the outside by providing the closure aspect to architecture.

### Education

The application of courtyards allows for the congregation of students outside and in the sun before they disperse into venues and facilities clustered around the courtyards. There is a direct interaction with the outside within the courtyards allowing for a more public interaction for social activities. This is then very different to the internal environment of a lecture venue which needs to be able to be completely shut off from the external world so as to minimise distraction. The threshold between these two spaces then needs to be in some way different to each of these spaces yet hold traces to each in order to structure the transition from one to the other.

### Programme 5.4/

Order  
Threshold  
Education

Education Based  
Commercial Based  
Services

### Illustrations/

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5/ 019 Movement within Building [Author]

5/ 020 Spaces + Connection in Building [Author]

5/ 021 Public Venues [Author]

5/ 022 Display Surfaces [Author]

## BASELINE CRITERIA 5/ Accommodation Schedule 5.5/

### Accommodation Schedule 5.5/

Due to the nature of the building consisting of multiple functions the allocations for adequate space and necessary facilities is dictated by basic recommendations according to "Neufert's Architects Data" and "SABS Standards". The guides are based on activities which can be catered for within a certain space and is calculated as appropriate for services required to support the specific activities.

A mixed array of functions for the building will enable a more sustainable environment which will cater for a large range of people and a variety of needs at the same time as capitalizing on facilities which can be shared by both categories of function. Loose fitting design also favours future alterations or changes in use which can still be accommodated. The basic needs are centred around Education and Commercial Entertainment / Office Spaces and Services required to support these.

#### Education

The following facility will focus on adult education accommodating lecture venues and workshop studios according to SABS 0400-1990 Occupancy / Building Classification terming the facility a Class A3 as a "Place of Instruction" and B3 as a "Low Risk commercial service". [SABS 0400-1990: 34]. For these activities the required square meters of space per person[m<sup>2</sup>/p] and is considered to vary between 5m<sup>2</sup>/p for Class A3 activities and 15m<sup>2</sup>/p for Class B3 activities. Facilities such as Libraries, internet access and other facilities are then based according to the necessary requirements to support the total m<sup>2</sup> of all education/ lecture venues and numbers of students which need to be serviced. Library's are Class C2 "Museum" requiring 20m<sup>2</sup>/p in order to function as required.

#### Commercial

Audio Visual Venues such as cinemas need to accommodate sufficient spacing to allow comfort for patrons for up to 2 hours of entertainment and necessary relief space from internal venues. This category of activity is Class A2 "Theatrical and Indoor Sport". Display Venues in the form of Galleries are tied between Class C1 "Exhibition Hall" and C2 "Museum" requiring 10-20m<sup>2</sup>/p. Cafés are termed as "Entertainment and Public assembly" Class A1 and require 1m<sup>2</sup>/p. Sufficient kitchen and staff areas need to be accommodated approximately 45-60% of the Café, to support the size of a restaurant which in turn is dictated by the allowance of space per customer. Office space Class G1 "Offices" as a production producing venue requires 15m<sup>2</sup>/p to allow for activities to occur such as meetings, desk work and studios.

#### Services

Toilets catering for the above mentioned classes categorised in Table 7 of SABS 0400-1990 Part P 'Drainage' S on page 127 are a basic calculation for the number of users between 1000 and 500 people = 0.15WCs [including urinals] needed per person and 0.08 washbasins per person. 8 Disabled toilets have been provided with necessary ramps and lifts to facilitate access throughout the building for disabled people.

The providence of parking as Class J4 Occupancy category for such a facility is required and is calculated according to square meter's of activity depending on use within the building. There is potential for public transport and pedestrian access to reduce the need for parking which is the preferred mode of arrival and it is highly possible due to the strategic location of the site combined with the proposal to upgrade the surrounding context to accommodate secondary transport systems. However, it is still necessary however to provide for parking which is determined by category of activity. Education based facilities require 6 bays per 100m<sup>2</sup> and commercial activity requires 4-6 Bays of Parking per 100m<sup>2</sup>.

Other services include the providence of sufficient vertical circulation in the form of lifts and stair cases and fire escapes for buildings consisting of more than three floors and more than 10m in height. Regulations for Fire Escapes Routes include "the travel distance measured to the nearest access door shall not be more than 45m". [SABS Standards 0400-1990:181] All escape routes must have a minimum width of 1.1m, with headroom of 2m and 2.4m for room height. [SABS Standards 0400-1990:184] Lift Shafts require fire resistance "of not less than the requirements for structural stability... subject to a maximum requirement of 120 minutes" fire resistance time. [SABS Standards 0400-1990:196] See Chapter 5/ on further Fire Resistance considerations.

### Accommodation Schedule 5.5/

Education  
Commercial  
Services

m<sup>2</sup>/p = square meters of  
space per person

WC [Water Closet] = toilet  
U = Urinal  
WB = Wash basin

#### Education

Lecture Venues [Class A3] = 5m<sup>2</sup>/p [SABS]  
Workshops [Class B3] = 15m<sup>2</sup>/p [SABS]  
Library [Class C2] = 20m<sup>2</sup>/p [SABS]

#### Commercial

Café [Class A1] = 1m<sup>2</sup>/p [SABS]  
Audio Visual Venues [Class A2] = 1m<sup>2</sup>/p [SABS]  
Offices [Class G1] = 15m<sup>2</sup>/p [SABS]  
Gallery Spaces [Class C1] = 10m<sup>2</sup>/p [SABS]  
Exhibition Spaces [Class C2] = 20m<sup>2</sup>/p [SABS]

#### Services

Toilets [Table 6 SABS :126] 0.15 WCs/p + 0.083  
washbasins/p

Parking [Class J4] = 50m<sup>2</sup>/p [SABS]  
Educational 6 bays per 100m<sup>2</sup>  
Commercial + Offices 4-6 bays per 100 m<sup>2</sup>



## BASELINE CRITERIA 5/ Accommodation Schedule 5.5/

### Accommodation Schedule 5.5/

The table below reflects the breakdown of floor area and numbers of users within the facility according to use. The total floor area for the building is calculated at just under 6000m<sup>2</sup> not including basements with just under 800 users including staff.

TOTAL SCHEDULE OF ACCOMMODATION TO ACCOMMODATE				CENTRE FOR MEDIA + IMAGE BLANCHE BEVAN			
		m <sup>2</sup> .	total.	no. of users	total.	no. of staff	total.
51% EDUCATION	GROUND	853		100		8	
	FIRST	853		100		8	
	SECOND	853		100		12	
	THIRD	426		54		4	
			<b>2985</b>		<b>354</b>		<b>32</b>
19% COMMERCIAL	GROUND	478		270		16	
	FIRST	313		56		14	
	SECOND	120		8			
	THIRD	207		8			
			<b>1118</b>		<b>342</b>		<b>30</b>
30% SERVICES [admin + toilets]	GROUND	482				5	
	FIRST	482				5	
	SECOND	482				5	
	THIRD	344				4	
			<b>1790</b>				<b>19</b>
<b>TOTAL</b>		<b>5893</b>			<b>696</b>	<b>81</b>	

		m <sup>2</sup> .		bays.		bays.
PARKING	EDUCATION	2985	@ 5 bays per 100 m <sup>2</sup>	150	@ 6 bays per 100 m <sup>2</sup>	180
	COMMERCIAL / OFFICES	1118	@ 5 bays per 100 m <sup>2</sup>	56	@ 6 bays per 100 m <sup>2</sup>	67
	SERVICES	910	@ 3 bays per 100 m <sup>2</sup>	27	@ 4 bays per 100 m <sup>2</sup>	36
				<b>min.</b>	<b>233 max.</b>	<b>283</b>
		<b>people.</b>				
	EDUCATION	354	min.	233 / 777 = 0.299 bays per person		
	COMMERCIAL / OFFICES	342		777/233 = 3.33 people per bay		
	SERVICES [admin + staff]	81	max.	283 / 777 = 0.364 bays per person		
		<b>777</b>		777/283 = 2.74 people per bay		

PROVIDED FOR						
	levels.	m <sup>2</sup> .	bays.	m <sup>2</sup> . per. bay	parking	circulation.
BASEMENT	1	3996	79	12.5	987.5	3008.5 *includes 9 Paraplegic
	2	3996	79	12.5	987.5	3008.5 *includes 9 Paraplegic
	3	3996	78	12.5	975	3021 *includes 9 Paraplegic
<b>TOTAL</b>		<b>11988</b>	<b>236</b>			
				total provided 236 / 777 = 0.303 bays per person		
				or 777/236 = 3.29 people per bay		

Accommodation  
Schedule 5.5/  
Calculations

# BASELINE CRITERIA 5/ Accommodation Schedule 5.5/

## Accommodation Schedule 5.5/

The table below reflects the breakdown of floor area and numbers of users within the facility on the Ground Floor.

### GROUND FLOOR PLAN

EDUCATION	venue.	no. sets	m <sup>2</sup> .	no. of users	no. of staff	m <sup>2</sup> /person.	
WORKSHOP	A		90	7	1	9.06	
	B		55	6	1	7.8	
CLASSROOM	A		74	12	1	5.6	
	B		52	12	1	5.2	
RECORDING STUDIO			167	5		33.4	
2 x studio							
1 x meeting room							
MEDIA LIBRARY			224	40	4	5.6	
DISPLAY SPACE	A		153	15		10.2	
	B		38	3		12.8	
<b>TOTAL</b>			<b>853</b>	<b>100</b>	<b>8</b>		
COMMERCIAL							
CINEMA	A		174	111	3	*includes 2 paraplegic	
	B		174	111	3	*includes 2 paraplegic	
CAFÉ			65	48	3		
KITCHEN			65		7		
<b>TOTAL</b>			<b>478</b>	<b>270</b>	<b>16</b>		
SERVICES							
TOLIETS				wc	urinals	wb	
Type 1			46		6	10	4
Type 2			35		6	3	4
Type 3			88		10	5	8 *includes 2 paraplegic toilets
Type 4			40		6	3	4
Type 5			28		6	0	4
<b>GROUND FLOOR TO-</b>			<b>237</b>		<b>34</b>	<b>21</b>	<b>24</b>
ADMIN					no. of staff	m <sup>2</sup> /person.	
Type 1			53		1	53	
Type 2			122		3	40	
Type 3			70		1	70	
<b>GROUND FLOOR TO-</b>			<b>245</b>				
<b>TOTAL</b>			<b>482</b>		<b>5</b>		
<b>FINAL TOTAL</b>			<b>1813</b>	<b>408</b>	<b>29</b>		

Accommodation  
Schedule 5.5/  
Calculations

## BASELINE CRITERIA 5/ Accommodation Schedule 5.5/

### Accommodation Schedule 5.5/

The table below reflects the breakdown of floor area and numbers of users within the facility on the First Floor.

FIRST FLOOR EDUCATION		venue.	no. sets.	m <sup>2</sup> . indiv.	no. of users	no. of staff	m <sup>2</sup> /person.
WORKSHOP	A		90		7	1	9.06
	B		55		6	1	7.8
CLASSROOM	A		74		12	1	5.6
	B		52		12	1	5.2
RECORDING STUDIO			167		5		33.4
1 x studio							
1 x meeting room							
PRINT + COPY			224		40	4	5.6
DISPLAY SPACE	A		153		15		10.2
	B		38		3		12.8
<b>TOTAL</b>			<b>853</b>		<b>100</b>	<b>8</b>	
COMMERCIAL		PROJECTOR ROOM	A	21		2	
			B	21		2	
		CAFÉ		65	48	2	1.3
		KITCHEN		65		7	9.2
		OFFICES		105	8		13.1
<b>TOTAL</b>			<b>277</b>		<b>56</b>	<b>13</b>	
SERVICES					wc	urinals	wb
TOLIETS							
	Type 1		46		6	10	4
	Type 2		35		6	3	4
	Type 3		88		10	5	8
	Type 4		40		6	3	4
	Type 5		28		6	0	4
<b>FIRST FLOOR TOTAL</b>			<b>237</b>		<b>34</b>	<b>21</b>	<b>24</b>
ADMIN						no. of staff	m <sup>2</sup> /person.
	Type 1		53			1	53
	Type 2		122			3	40
	Type 3		70			1	70
<b>FIRST FLOOR TOTAL</b>			<b>245</b>				
<b>TOTAL</b>			<b>482</b>			<b>5</b>	
<b>FINAL TOTAL</b>			<b>759</b>		<b>56</b>	<b>18</b>	

Accommodation  
Schedule 5.5/  
Calculations

\*includes 2 paraplegic

## BASELINE CRITERIA 5/ Accommodation Schedule 5.5/

### Accommodation Schedule 5.5/

The table below reflects the breakdown of floor area and numbers of users within the facility on the Second Floor.

SECOND FLOOR EDUCATION		venue.	no.	sets.	m <sup>2</sup> .	m <sup>2</sup> . indiv.	no. of	no. of staff	m <sup>2</sup> /
		WORKSHOP	A		90		7	1	9.06
			B		55		6	1	7.8
		CLASSROOM	A		74		12	1	5.6
			B		52		12	1	5.2
		RECORDING			167		5		33.4
		1 x studio							
		1 x meeting room							
		INTERNET ZONE			224		40	4	5.6
		DISPLAY SPACE	A		153		15		10.2
			B		38		3		12.8
		STUDY CENTRE			129		10	4	9.21
<b>TOTAL</b>					<b>982</b>		<b>110</b>	<b>12</b>	<b>98.87</b>
COMMERCIAL									
		OFFICES			105		8		13.1
<b>TOTAL</b>					<b>105</b>		<b>8</b>		
SERVICES									
		TOLIETS					wc	urinals	wb
		Type 1			46		6	10	4
		Type 2			35		6	3	4
		Type 3			88		10	5	8
		Type 4			40		6	3	4
		Type 5			28		6	0	4
		<b>SECOND FLOOR</b>			<b>237</b>		<b>34</b>	<b>21</b>	<b>24</b>
		ADMIN						no. of staff	m <sup>2</sup> /
		Type 1			53			1	53
		Type 2			122			3	40
		Type 3			70			1	70
		<b>SECOND FLOOR</b>			<b>245</b>				
<b>TOTAL</b>					<b>482</b>			<b>5</b>	
<b>FINAL TOTAL</b>					<b>625</b>		<b>11</b>	<b>5</b>	

Accommodation  
Schedule 5.5/  
Calculations

\*includes 2 paraplegic

## BASELINE CRITERIA 5/ Accommodation Schedule 5.5/

### Accommodation Schedule 5.5/

The table below reflects the breakdown of floor area and numbers of users within the facility on the Third Floor.

THIRD FLOOR PLAN						
EDUCATION						
venue.	no. set	m <sup>2</sup> .	m <sup>2</sup> .	no. of	no. of staff	m <sup>2</sup> /person.
WORKSHOP	A	90		7	1	9.06
	B	55		6	1	7.8
CLASSROOM	A	74		12	1	5.6
	B	52		12	1	5.2
RECORDING STUDIO		167		5		33.4
1 x studio						
1 x meeting room						
EDUACTION OFFICES		224		12		18.6
<b>TOTAL</b>		<b>662</b>		<b>54</b>	<b>4</b>	<b>79.66</b>
COMMERCIAL						
OFFICES		105		8		13.1
<b>TOTAL</b>		<b>105</b>		<b>8</b>		
SERVICES						
				wc	urinals	wb
TOLIETS						
Type 1		46		6	10	4
Type 2		35		6	3	4
Type 3		88		10	5	8
Type 4		40		6	3	4
Type 5		28		6	0	4
<b>THIRD FLOOR</b>		<b>169</b>		<b>22</b>	<b>18</b>	<b>16</b>
ADMIN					no. of staff	m <sup>2</sup> /person.
Type 1		53			1	53
Type 2		122			3	40
Type 3		70			1	70
<b>THIRD FLOOR</b>		<b>175</b>				
<b>TOTAL</b>		<b>344</b>			<b>5</b>	
<b>FINAL TOTAL</b>		<b>449</b>		<b>8</b>	<b>5</b>	

Accommodation  
Schedule 5.5/  
Calculations

\*includes 2 paraplegic

# BASELINE CRITERIA 5/ SBAT Component 5.6/

## SBAT Components 5.6/ Project Objectives

The intention is to provide a facility which empowers people through education and the opportunity to interact with media and image in our technological culture. The providence of venues in which the general public can interact and view media and image initiates an interest and thus a need for further display and ultimately a market which is closely in tune with it's context and people.

As a facility in tune with current trends and especially technology a high tech approach to construction and materials needs to be adopted with the use of new building skills, new advances in materials requiring less materials and technical mechanisms which reduce running costs and future maintenance.

## Sustainable Building Lifecycle

Construction/

The use of materials which can be assembled as large components helps with the potential to reuse materials. The following project sets out to use Tilt-Up Construction creating large concrete walls which can be dismantled, relocated and reused. Steel elements yield a similar opportunity for reuse as does glass, making up the three main materials in the following dissertation. The intention of Tilt-Up construction enables a fast rate of construction with a high level of precision requiring minimal skill, yet requiring high class mechanical equipment such as cranes to erect the concrete elements. Due to the location of the project, transport of machinery is not a huge set back and the opportunities which are provided by building in a city should be made use of to create a high class quality building which can yield a better building performance in the long run.

Walls and primary supporting columns are to be predominantly made of concrete with Tilt-Up construction, floors are to made of Post Tensioned concrete, roofing and light secondary supporting elements are to made of steel and glass, to be used with steel louvres for edges of the building requiring transparent aspects and obtaining maximum visual attention.

Working Building/

Power supply is to be predominantly electricity based to provide for Large Screen display with the potential for Nano Technology incorporating highly advanced surfaces. Water Supply is to be general municipal supply to the building. Rain water collection to be incorporated into the building through drainage pipes located in the structure holding water in large tanks edging the back of building, to service building landscaping and edging Urban Agricultural Land located along the edge of the building.

All steel and High tech mechanical devices will need maintenance but the use of concrete and self cleaning glass will reduce the need for complete building maintenance over time.

## Target Setting

The approach is to incorporate new technological advances in design, building assembly and material requirements. Minimal skill requiring construction yielding maximum performance and quality is sort after in the following dissertation. Ideally one strives for a facility which yields a high level of occupant comfort, maximum interaction between occupant and context and a high quality of display.

## Detailed Design

Connection + Communication /

The intention is to accommodate as much interaction between occupants and the surrounding context through visual and physical means where possible in relation to the requirements of the Programme. The providence for surfaces of the building which become more than just surfaces but canvases for display becomes an expressive aspect of the building. Steel louvres are designed to cater as shading devices but also as screen surfaces joined together to create a large display screen.

Movement into and around the building is a feature necessary considering the location the building within a highly active movement network. Functionality and simple legible layout is necessary for a very public building which will service a large variety of people often just visiting the building for short stays versus students using the building everyday.

The use of load bearing concrete structures will serve as the primary supporting systems with steel elements functioning as secondary supporting systems, for transparent components of the building requiring glass.

The intention is to use Louvre glass panels rather than large sheets of glass to enable easy maintenance.



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## SBAT Components 5.6/ Project Objectives

Empowerment  
Technology

## Sustainable Building Lifecycle

Construction/  
Working Building/

## Target Setting

## Detailed Design

Connection + Communication/  
Considerations/  
Structure/



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# BASELINE CRITERIA 5/ SBAT Component 5.6/

## SBAT Components 5.6/ Construction

Unfinished Concrete Tilt-Up Panels requiring minimal maintenance with pre-determined cut outs for window and door installations require easily trained and minimal skilled labour. The reduction in scaffolding and form works ensures a form of construction requiring less equipment. Cranes will be necessary to erect the panels with sufficient cable work to prop the concrete components until all components are in place.

Steel in the form of Roofing is to be supported by Steel Systems directing loads to the primary concrete load bearing walls and columns and steel louvres are to be designed to create mechanically driven shading devices with display quality surfaces.

Glass louvre panels and safety glass for glass balustrades are to be used throughout the building in conjunction with steel elements to hold the glass in place.



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SBAT Components 5.6/

Construction

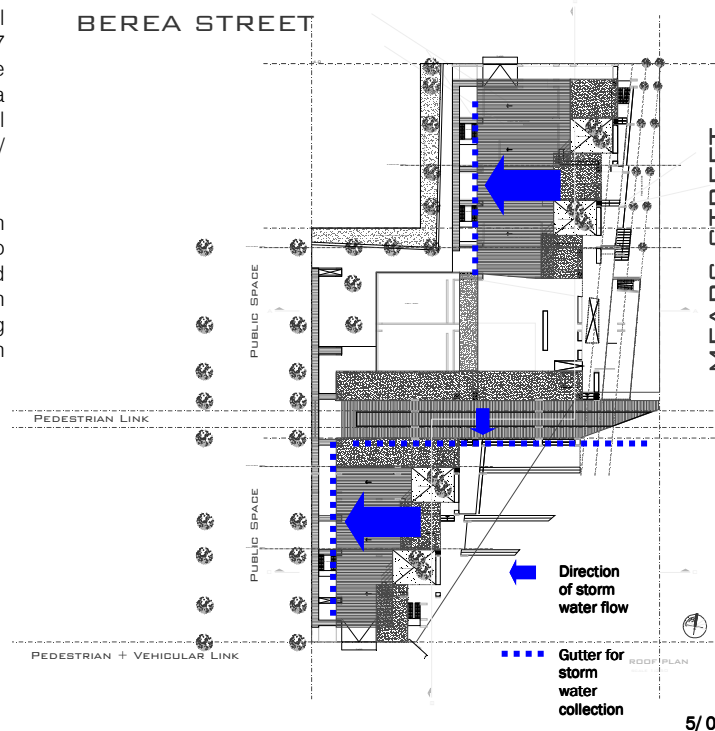
Water foot Print

## Water foot Print

The calculation of the waterfoot print involves the 'total volume of fresh water that is used to produce the foods and services consumed by individuals expressed in terms of volume of water use per year'. The 'nations water foot print is the total water used to produce goods and services consumed by the inhabitants of the nation'. [www.waterfootprint.org]

With this in mind looking at the total population of South Africa being 44 187 637 people [www.cia.gov 2006/10/02]the Average Water footprint of South Africa equals 931m<sup>3</sup>/capita/year and the Global Average Water Footprint equals 1243 m<sup>3</sup>/capita/year [www.waterfootprint.org].

Systems to reduce water consumption can be placed within this facility such as two flush toilets, grey water systems and filtering systems. The collection of rain water to be used on surrounding landscaping is a standard approach incorporated in the building.



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## Illustrations/

- 5/ 023 Cartoon [www.cncii.org.za 02/10/2006]
- 5/ 024 Tilt-up Construction [www.cncii.org.za 02/10/2006]
- 5/ 025 Tilt-up Construction [www.tiltupnews.com 02/10/2006]
- 5/ 026 Steel + Concrete Construction [EQF Project Managers at Maponya Mall, Soweto]
- 5/ 027 Steel Detail at the University of Pretoria Law Building [Author]
- 5/ 028 Steel Louvre System at the Department of Science + Technology [Author]
- 5/ 029 Roof Plan of Design [Author]

## BASELINE CRITERIA 5/ SBAT Component 5.6/

### SBAT Components 5.6/ Building Performance Environmental/

- Water > The intention is to incorporate Rain water collection from all roofing surfaces with down pipes located in the structure of the building to carry water to water tanks. Water is then to be collected and stored in tanks to service landscaping and a proposed Urban Agricultural Edge
  - > Deep soil planting for trees located in courtyards has been taken into consideration in relation to basements to allow for maximum planting
  - > The proposal for an Urban Agricultural Edge along the back walls of the site property are in place to cater for the local residents as communal agricultural gardens providing a green edge and social corridor to the back of the building which is to be used by the local residents as communal agricultural gardens.
  
- Energy > The building design is formulated from the needs of the occupants which need to be accommodated in order to keep a high level of occupancy comfort and to make use of all orientation qualities which are ideal for certain activities..
  - > Cross ventilation is emphasized through smaller, skinnier spaces with openings on either side of the room to create air flow. The placement of pivoting panels and louvre systems are used in the following dissertation to allow users to alter their environment should they require more air circulation or less.
  - > Social spaces are located on the northern edge to take full advantage of the Southern Hemisphere situation where one can obtain direct sunlight. Shading devices on the north are also in place to accommodate the harsh sun in summer.
  - > Southern Edges are predominantly saved for services or activities requiring indirect light such as Library's and Computer rooms.
  - > Steel louvre shading devices are to be installed on both East and West Facades to reduce low angled winter sun penetration and to reduce the need for air conditioning in Summer by providing shading to the building façade.
  - > Light and ventilation shafts are designed to service basements
  
- Site > site needs to respond and cater for surrounding context to initiate maximum use of the area and facilities such as transport routes already functioning.
  
- Waste > Well ventilated refuge storage is provided in the basement for city municipal services to collect.
  
- Sewage > Ventilation and service ducts are in place to allow for sufficient functioning of building toilets and the removal of sewage to the local municipal sewer line.



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### SBAT Components 5.6/ Building Performance

Environmental/  
Water  
Energy  
Site  
Waste  
Sewage



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### Illustrations/

5/ 030 CMA Logo [www.cma.org 02/10/2006]

5/ 031 Lafarge Cement South Africa Logo [www.concretesociety.co.za or www.lafarge.co.za 02/10/2006]

5/ 032 Holcim South Africa [www.holcim.co.za 02/10/2006]

5/ 033 Mittal Steel Logo [www.mittal.co.za or www.iscor.co.za 02/10/2006]

5/ 034 Amstele Systems [www.amsteelesystems.com 02/10/2006]



## BASELINE CRITERIA 5/ SBAT Component 5.6/

### SBAT Components 5.6/ Building Performance Economic/

- Local Economy + Use > The use of Local Economy is to reduce the distance for sourcing materials and components . The location of the Project in Pretoria yields a great potential for a variety of materials, skills and availability of materials. Essentially the use of local ie. South African materials, contractors will be the intention to further encourage development within South Africa through providing employment and supporting a Proudly South African Economy.
- Proudly South African > Companies such as Tilttech-Tilt Up Technologies (Pty) Ltd can be used for Tilt-Up Construction in conjunction with Lafarge, PPC, Holcim, CMA [Concrete Manufacturing Association] as concrete suppliers . Post Tensioned concrete floors can be produced by the same concrete companies but companies such as Amsteele Systems or Amalgamated Steele Systems or VSL Systems (SA) Pty, Ltd are needed for steel components and the technical skills required to produce post-tensioned slabs. All steel elements such as roofing, I-Beams, C-Section Purlins can be provided by Mittal Steel South Africa or Highveld Steel Vanadium.
- City > The city environment has its advantages and should be used in the following project. The use of local companies, local materials and the local work force, ensures lower transportation costs as transport networks are in place and in close proximity to the site and fast construction. A variety of skills and building methods are also available but essentially due to the building methods adopted requiring low skilled labor, and labour force required opens up the opportunity for employment to a larger field of people. The potential for materials to arrive by rail is very possible with the following location making use of Mears Train Station.
- Flexible Layout > Flexible building elements ensures the potential for changing environments both in the form of moving walls or making use of shading devices. Removable elements ensure later relocation for elements if required.
- Time > The following facility is intended as an Adult Education facility with components which can function on a 24hr basis. Public Spaces and components can function from 8h00 in the morning to 23h00 at night. Cinema and display venues will predominantly be used at night owing to social entertainment patterns and lighting quality required for outdoor display. Education components will predominantly be used from 8h00 to 17h00 however Library, Internet, Media zones need to be accessible 24hrs.
- Management of Spaces > The location of public spaces along the edge of the building allows for guaranteed interaction with passing movement and catering for this with display, seating and shading. The location of easy access yet controlled points is provided with sufficient relief spaces acting as semi-public spaces for education facilities in the form of open courtyards. There is a logical sequence of arrival with necessary administration points to guide visitors, with a clear circulation strip located on the front of the façade. The intention is the express the functions of the building to the outside world and define spaces with thresholds to emphasize the experience of moving from one space to another. The providence of vertical circulation in the form of steel stairs, ramps and lifts are provided evenly throughout the building allowing for a fluid moving environment still catering for disabled people.



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### SBAT Components 5.6/ Building Performance

Economic/  
Local Economy

Efficiency of Use  
Local Sources/  
Flexible Layout/  
Time/

Managements of Spaces/

Adaptability + Flexibility  
Roof/  
Structure/



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#### Illustrations/

- 5/ 035 Construction Workers [EQF Project Managers at Maponya Mall, Soweto]  
 5/ 036 Construction Workers [EQF Project Managers at Maponya Mall, Soweto]  
 5/ 037 Construction Workers [EQF Project Managers at Maponya Mall, Soweto]  
 5/ 038 Construction Workers [EQF Project Managers at Maponya Mall, Soweto]

## BASELINE CRITERIA 5/ SBAT Component 5.6/

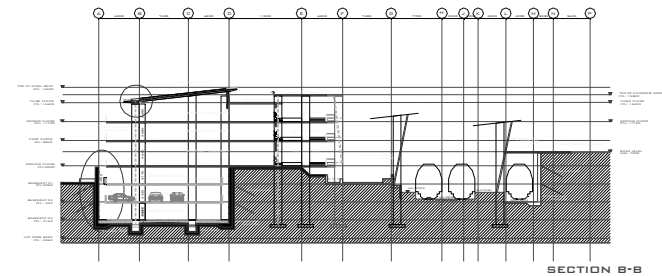
### SBAT Components 5.6/ Building Performance Environmental/

- Material > Minimal waste and equipment is needed with the construction methods allocated for the following dissertation. Such methods allow for:
  - > minimal hazards and cleaner site environment reducing contamination of site due to construction methods
  - > efficient, fast and smooth erection of building due to simple materials and construction methods
- Adaptability + Flexibility > The use of steel roofing allows for flexible change and movement of sheeting whilst bolted to steel elements. This ensures the potential for reuse and relocation of all roofing elements. The intention is to use standard components with bolt connections rather than welded connections where possible.
- Fire > Evenly distributed fire escapes, connected to all basements are in place throughout the building according to SABS 0400-1990 Part T Regulations. Concrete Tilt-Up panels ensure maximum fire safety conditions depending on thickness of the panels. With a thickness of 300mm which is desired thickness for all panels, fire resistance can be calculated as more than 4hrs [www.tilt-up.org 02/10/2006] and well within SABS requirements in part TT2.1 [SABS 0400-1990:159]
- Costs > Concrete Tilt-Up Panels 'require very little maintenance as power floated surfaces do not require plastering and exterior surfaces can be left unpainted'. [www.cnci.org.za 02/10/2006] This reduces the need for later servicing and labour costs.

Economic/

> Security is combated through the use of visual surveillance with transparent edges of the building to maximize connection between occupants and the surrounding context. The circulation strip along the front of the façade though visible is raised to create a semi public environment only accessible by the public at the entrance of the building via controlled admin points.

> The Current Urban Frame consists of a number of movement networks which converge at the location for the following dissertation. The intention is to build on this and use the current dynamics of the area to provide for this activity and create a more people friendly environment. The site motions for making use of the local facilities such as Mears Train Station, Elandspoort Road and the pedestrian Link between UNISA's Main Campus and Sunnyside Campus. The use of existing infrastructure and response to this to upgrade facilities to generate more activity provides a sustainable approach whereby any form of capital invested into the area will automatically yield an outcome and have direct effect creating an exponential progressing outcome.



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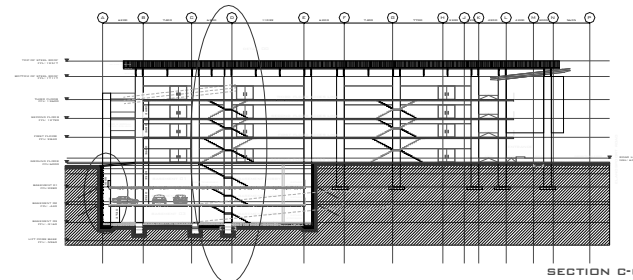
### SBAT Components 5.6/ Building Performance

Environmental/

Materials  
Adaptability + Flexibility  
Fire

Economic/

Costs  
Ongoing Maintenance/  
Security/  
Capital Costs/



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Illustrations/

5/ 039 Section B-B Through Building + Mears Train Station [Author]  
5/ 040 Section C-C Through Entrance Connecting Access Link [Author]

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## BASELINE CRITERIA 5/ SBAT Component 5.6/

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### SBAT Components 5.6/ Building Performance

Social/

- Occupant Comfort > The intention is to provide an interactive building both on a physical and visual level. Connection to the outside aids in orientation and has health benefits. Access to ventilation, sunshine and the ability to control the amount of interaction all aids to occupant comfort. Mechanical steel louvres are to act as shading devices at the same time as providing display surfaces to the inside and to the outside of the building. The intention of the entrance / connecting access link is to provide an environment which allows for the public to access the highest point of the building and view out of the building yet still need to move through administration controlled zones to pass into other points of the building. The design of the building also takes into consideration the visual approach towards the building along Elandspoor Road and Mears Street and the access link to Mears Train Station which needs to be made very visible. Sounds and wind barriers are to be placed alongside the train station to buffer the Gautrain which will not stop at Mears Train Station but will pass by at relatively fast speeds. Sound Control and Dirt control are definitely factors which need to be considered in such an environment and need to be accommodated in appropriate materials considering the situation for cleaning and maintenance by surrounding buildings.
- Inclusive Environments > Access to the building is possible by foot or by vehicle and is supported by the Urban Design Proposal for the area to accommodate a transport interchange. The building faces onto Mears Street and Elandspoor Road and has a physical and visual connection with all movement networks. Social spaces are located on the periphery of the building and inform the form of the building so as to create a building which incorporates social dynamics of the site.
- Access to Facilities > The building is located along a threshold into the city and functions as a defining edge to the arrival entrance into Pretoria. The intention is to cater for the already existing movement networks and create a building which is fully integrated into the context providing services, stimulation and usable features such as seating, shading and orientation. Access to Mears train Station and UNISA's Campus's are of utmost importance as these are the main pedestrian movement poles to which people are moving back and forth from.
- Participation + Control > Environmental Control in the form of Steel Louvre Systems located on East and West Facades are in place to move mechanically depending on light conditions. Cross ventilation is possible through interactive elements such as glass louvre windows and pivot doors and louvres. The creation of transparent edges and louvres allows for participation of occupants with the outside context in the form of visual interaction.
- Education, Health + Safety > The provision of adult education in the form of Media and Image allows for a society to keep up to date with the advances in our culture. Technology is the means to truly be connected and able to communicate with the local context, regional, national, international and global context at this point in time.

### SBAT Components 5.6/ Building Performance

**Social/**

Occupant Comfort  
Interactive Environment/  
Views/  
Noise/

Inclusive Environments  
Access + Signage/  
Movement/  
Design Elements/

Access to Facilities  
Location to node/

Participation + Control  
Environmental Control/  
Social Interaction/

Education, Health + Safety  
Providence of Adult Education/