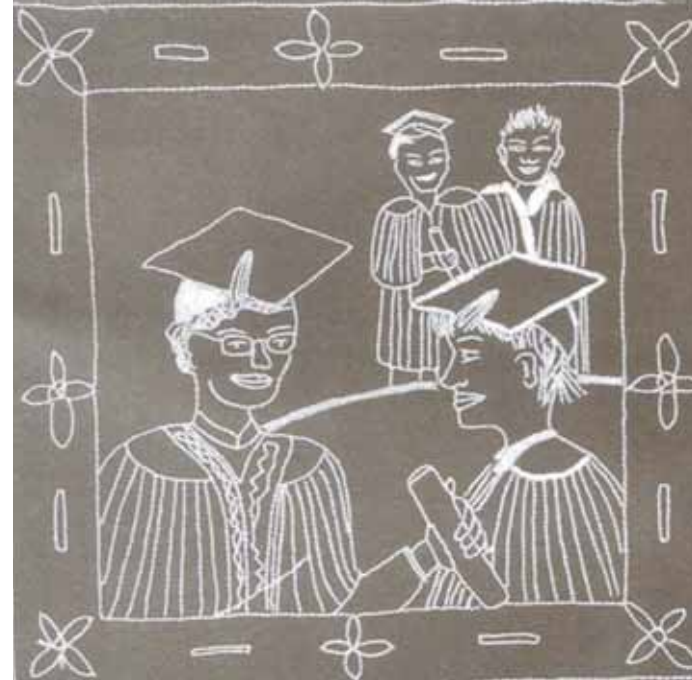




DESIGN

**06: DESIGN DEVELOPMENT**



meriza mbuyane

( MERIZA MBUVANE, 54 YEARS OLD)

am literate and proud of myself

( I AM LITERATE AND PROUD OF MYSELF)

## 06: DESIGN DEVELOPMENT

### 1 - DESIGN PHILOSOPHY: ARCHETYPES

#### 1- 1 THE SEARCH FOR AN APPROACHABLE BUILDING

The proposed site is located on a strategic intersection between train, taxi and bus transfer points of Marabastad and on the pedestrian route towards the city centre. Many pedestrians pass the proposed site everyday on their route between work and home. The majority of the passing pedestrians live in lower-income townships and informal settlements all over Tshwane and beyond. The location of the site creates the ideal opportunity to attract the large number of passing pedestrians to be the daily users of the proposed centre. The question is how to design the centre so as to be inviting and approachable for the passing pedestrian.

**“The buildings we call beautiful contain in a concentrated form those qualities in which we are deficient”**  
(De Botton 2006: 167)

According to John Ruskin (1819 – 1900), the famous art critic, a good building is a shelter which communicates. Buildings that the general public admire communicate qualities of friendliness, kindness or strength (De Botton 2006: 98). These good qualities can be experienced in respect of buildings built by different civilisations over the decades. The same mystical presence and esoteric meaning of space and form can be experienced at the Chartres Cathedral and at the Pyramids in Egypt. On the other hand, it is argued that the majority of buildings of the Modern age do not possess these qualities and are uninhabitable and emotionless. Before Modernism, people expressed insight into a higher spiritual reality and portrayed their spiritual creator as beauty through their buildings. The traditional expression of design has been discarded by the Modern architect (Bangs 2007: 3).

The industrial revolution and the fading away of spirituality gave rise to a new era of architecture. Function and production became the norm and natural, human and environmental concerns were disregarded. Buildings became planes of repetition and dehumanisation (Fleming, 1995: 679). Most of the iconic buildings of the Modernist era, for example Farnsworth House by Mies van der Rohe, were scientific and mechanical masterpieces, but uninhabitable to their users.

Robert Venturi, an architect of the 60s, was the first to openly criticise the modernist approach in a book entitled *Complexity and Contradiction in Architecture*. According to Venturi, architects should focus on the existing and improve it instead of reinventing it. Venturi and Scott-Brown, his partner, proposed a new symbolist architecture with the ability to adapt to the speed and mobility of modern society (Fleming, 1995: 681).

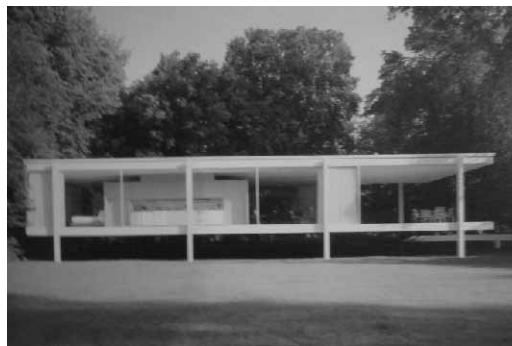


Figure: 6.1: Farnsworth House  
(Zimmerman 2006: 65)



Figure 6.2: Chartres Cathedral  
(Fleming 1995: 203)

## 1.2 - ARCHETYPES

Carl Gustav Jung (1875 – 1961), a Swiss psychologist and founder of analytical psychology, developed the theory of the archetype. According to Jung the archetype consists of the ideas and materials drawn from the organised structure of the mind to create images in the unconscious. The organised structure makes thoughts possible and creates our perception of the world. An archetype is an image we see and connected to an underlying reality that has been part of human consciousness since the primordial age (Bangs, 2007: 84).

**“Architecture is both symbol and shelter: symbol of the divine reality and shelter for our physical bodies”**

(Bangs 2007, p73)

## 1.3 - ARCHETYPE OF SHELTER

### THE CAVE

**“The cave, as shelter, is imprinted in the generic fabric of our being”**

(Bangs 2007, p88)

Man's first shelter, preceding the hut or tent, was the cave. According to ancient beliefs, the earth is seen as the mother and the cave is therefore the womb, the haven of shelter and protection (Bangs, 2007: 92). The cave, as the archetypal image of shelter, can best be seen in places of worship, from the dome-shaped Orthodox churches to Le Corbusier's church in Ronchamp. Le Corbusier designed this church at the end of his career as a free-flowing concrete cave with light penetrating through coordinated openings, unlike in his previous work. Philip Johnson, another master of the Modernist Era, only realised the significance of the cave after he designed his own house, the Glass House in Connecticut, USA. The original design was a rectangular glass and steel structure; after its construction, Johnson realised he had no privacy or protection against the onlooker or the environment. A second building was constructed, an enclosed box across from the first, to be used as a shelter for protection and privacy.



Figure 6.3: The Glass House, Philip Johnson (Bangs 2007: 92)

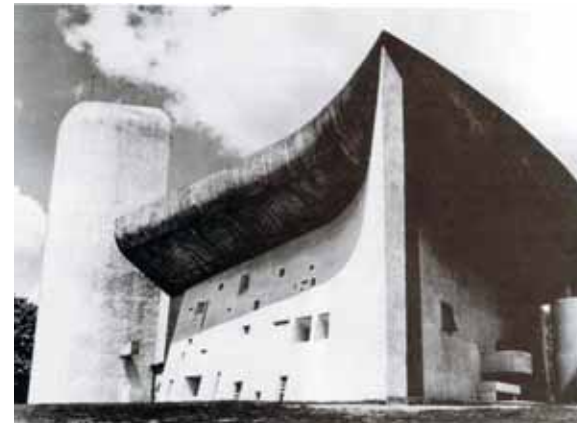


Figure 6.4: Notre-Dame-du-Haut, 1955 (Fleming 1995: 656)

### THE CLEARING

This is the outside space where we as humans can move freely and see the sky. Every city in the world has squares and parks for gatherings and relaxation, binding the urban framework. The clearing is the counterpart of the cave, representing light and masculinity.

### THE OPENING

The opening is the boundary between the female cave and the male clearing. The opening must always resemble the boundary between the inside and outside. The mass production of large glass planes at the beginning of the 20th century gave the architects the technology to create borderless glass walls with no definition between the clearing and the cave. Frank Lloyd Wright acknowledged the importance of the definition and never dissolved the wall. Wright saw all parts of the building as related to each other as a continual and integrated whole, the fundamentals of organic architecture (Pfeiffer, 1991: 28).

### THE GARDEN

We as humans are dependent on plants for our existence, and the garden is our link to the earth, our origin. Frank Lloyd Wright integrated the building with the site and acknowledged the importance of nature. According to Wright, a close relationship with nature will better your personal, spiritual and physical well-being (Pfeiffer, 1991: 26).

### THE PRESENCE OF WATER

Water is the life giver to everything on earth, a physical and psychic element of existence (Bangs 2007: 109). Water has always been an important factor which has shaped most of the cities in the world. "The falling water house" by Frank Lloyd Wright is one of the 20th century's masterpieces. This house consists of various different planes spreading towards nature and cantilevering over a natural waterfall.



Figure 6.5: Solar Hemi-cycle house, 1948  
Frank Lloyd Wright  
(Pfeiffer 1991: 154)  
The opening and the garden

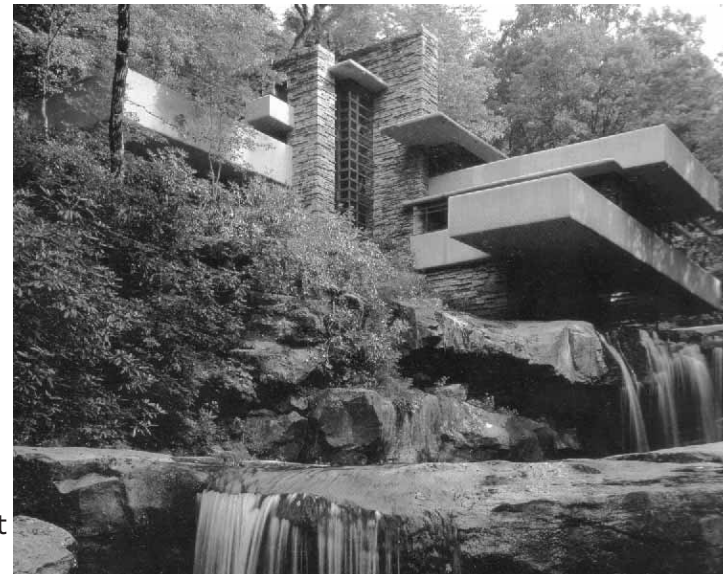


Figure 6.6: Falling water, 1939, Frank Lloyd Wright  
(Pfeiffer 1991: 92)

## THE FOUR ELEMENTS

The relationship between the four elements and the archetypes of shelter is:

- Earth = the cave, hard, dark
  - Air = the clearing, space and light
  - Water = water, ultimate source of life
  - Fire = the garden, the sun that gives energy to all living elements
- (Bangs, 2007: 115)

## 1.4 - ARCHETYPES OF DESIGN

### DUALITY

Duality is best illustrated in the eastern philosophy as yin and yang. The ancient yin and yang symbol refers to duality within unity or hormonal diversities. One can't exist without the other, light and dark, cave and clearing or fire and water.

### HIERARCHY

Hierarchy is the organisation of importance, from the sun and its orbiting planets to the atoms of a molecule. The design of a building must be based on the hierarchy of human participation. Active and important areas should be dominant compared with minor and service functions. An example of the wrong usage of hierarchy can be seen at the Pompidou Centre, designed by R. Rogers and R. Piano in Paris (Bangs, 2007: 126). The hierarchy is focused on the mechanical systems, the ducting and piping, which is placed on the outside and overwhelms the building.

### MATERIALS

Materials are usually chosen for their physical characteristics of strength or durability. It is also necessary to consider the fundamental elements of materials. Rock, for example, must be used and interpreted as rock, a symbol of hardness, solidity and mass. A thin wall with rock cladding or a suspended stone wall above a glass plane gives an impression of instability. Materials should be used in their natural form and not covered or hidden.



Figure 6.7: Guild House, 1965, Robert Venturi (Fleming 1995: 682) Hierarchy and proportion

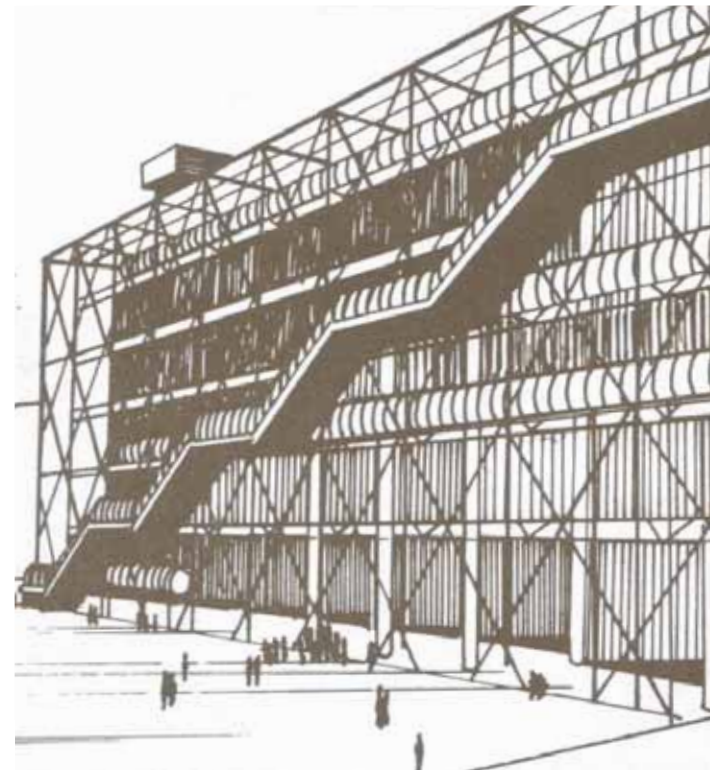


Figure 6.8: Pompidou Centre, 1971, R. Rogers and R. Piano (Stimpson 1985: 140)

## 2 - DESIGN INFLUENCES

### 2.1 - THE NORTH-SOUTH AXIS:

The approach to the design is to use basic shapes and principles to create a straightforward building that any observer can interpret and understand. In terms of literacy, a building is equivalent to a book – it should be easy to read.

The overall design concept focuses on a reading room with internal functions that caters for all literacy needs. The building will be rectangular in shape to optimise usable space.

The high number of pedestrians walking on a north-south axis as well as the building lines necessitated elongation of the design concept on a north-south axis with a central internal and western external walkway.

The western facade and external walkway need to be shaded against the sun, while the facade must remain visible and readable to the observer as it faces the street.

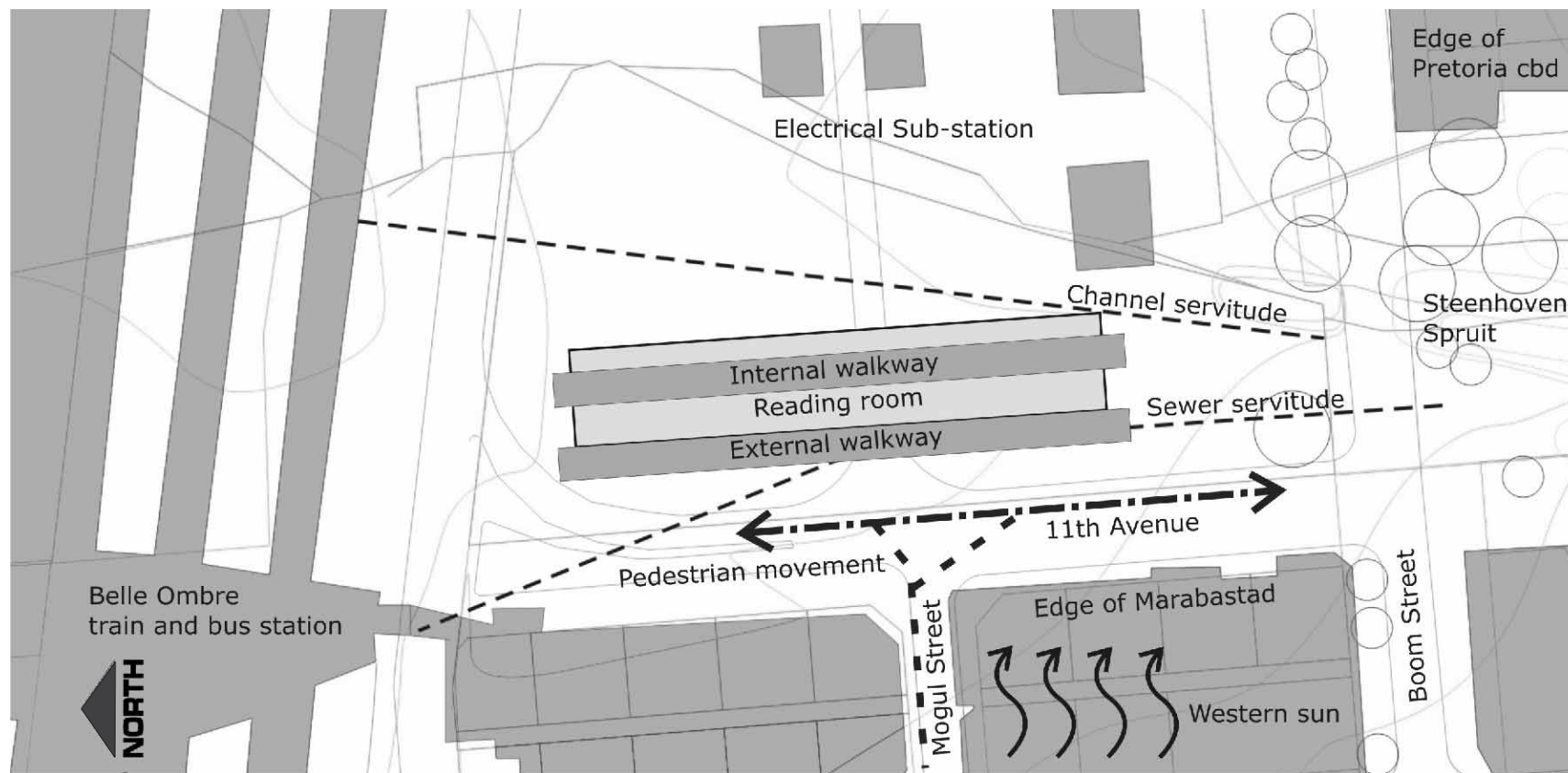


Figure 6.9: Concept plan

## 2.2 - THE EXISTING GRID:

The morphology of Marabastad is shaped by a formal grid and stands of approximately 260 sqm in size. The existing buildings of Marabastad are positioned against each other due to the lack of building lines; this creates an uninterrupted yet interesting street facade. The original grid can only be identified by the different materials, building methods and heights of the individual buildings. This unique grid and the miscellaneous facades of the existing buildings must be amplified in the proposed design to ensure that the character of the existing urban fabric is enhanced.

The proposed site is positioned in a void created by contrasting land uses and transitional environments, including the edge of Marabastad, Belle Ombre station, the electrical sub-station and the Steenhoven Spruit. The proposed project must fill the void and attempt to creatively integrate these locations.



Figure 6.10: Existing elevation of buildings across the proposed site

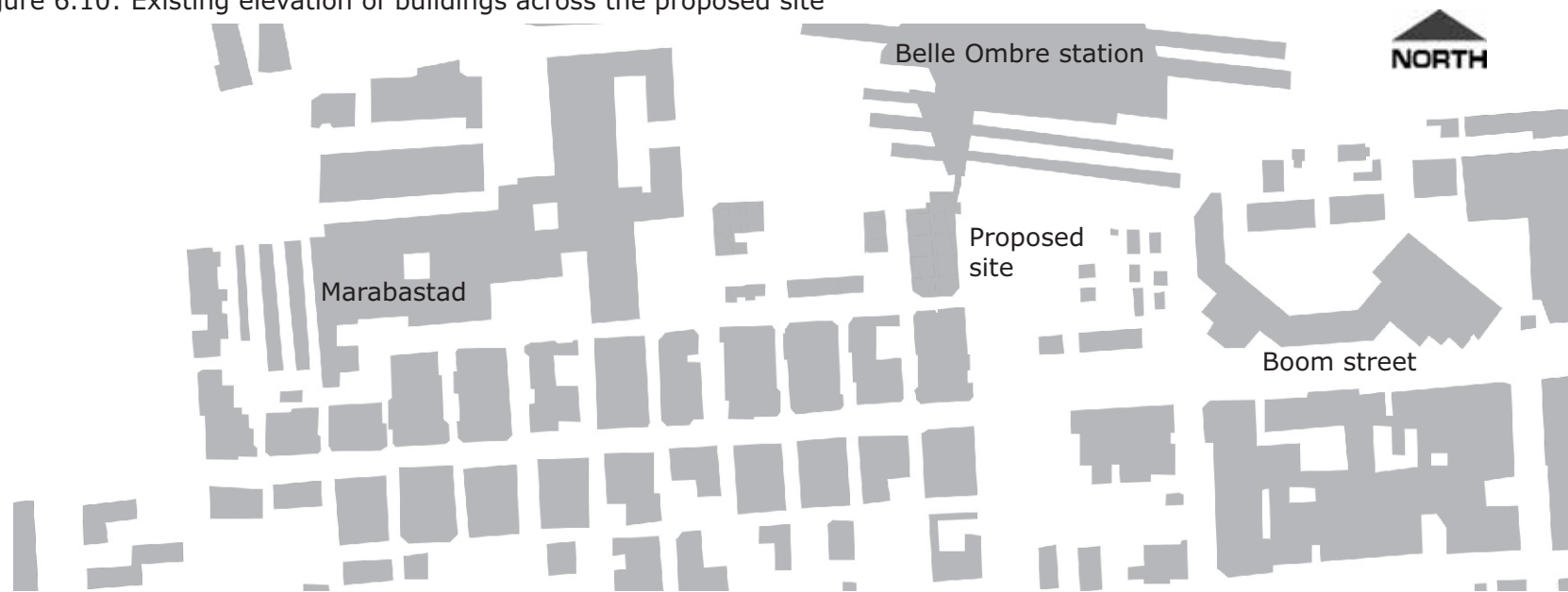


Figure 6.11: Building footprint of Marabastad

## 2.3 - ARCHETYPES:

### 2.3.1 - ARCHETYPES OF SHELTER:

**THE CAVE:** Viewed in the site context, the building is the cave and the auditoriums are the primary chambers of the cave. The auditoriums are concrete boxes, isolated from the outside, places of learning and concentration.

**THE CLEARING:** Clearings are places where people can walk freely and observe the sky. The canopy and pavement walkways and the square on the western side are public areas with seats and shade that allow for informal gatherings.

**THE OPENING:** The opening is the link between the building and the outside. Variations elements have been used – from frameless glass walls, aluminum shopfronts and Winblok panels to face brick walls. The main entrance is a glass door punched into a concrete box, clearly identifiable as a place to enter.

**THE GARDEN:** The garden is a retreat to nature and to humankind's origins. Courtyards with trees and lawns are positioned on the eastern side behind the building, private and quiet.

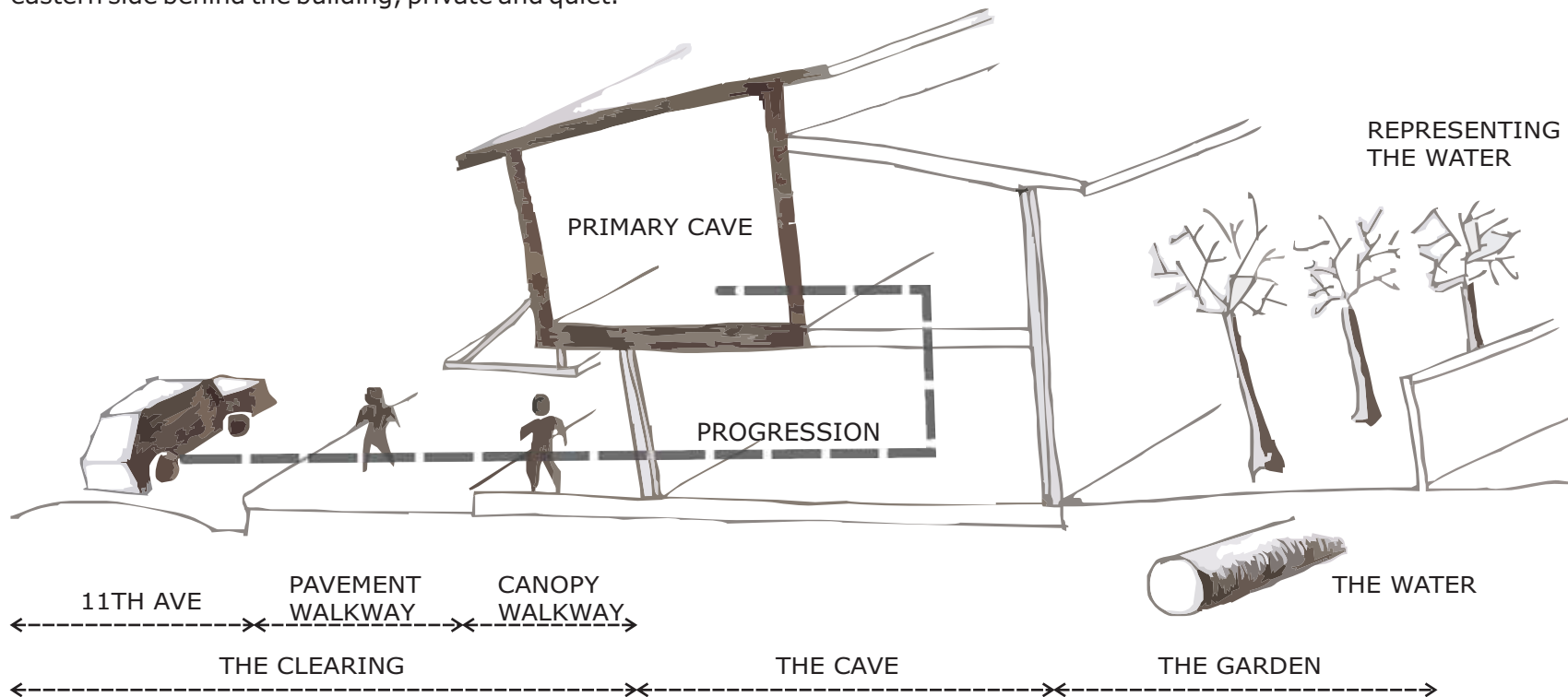


Figure 6.12: Archetype section



### 2.3.2 - ARCHETYPES OF DESIGN:

**DUALITY:** Duality divines the idea of difference, the balance between opposites. Dark and light is the most basic expression of dualism.

**HIERARCHY:** The order of importance is amplified by height and visibility. The auditoriums are the learning hubs of the centre and are placed on the first floor, projecting through the front facade. Service elements with no importance to literacy are hidden behind a wall at the back of the building.

**MATERIALS:** Materials are considered for their physical and symbolic characteristics. Private areas are enclosed by concrete and public areas are opened up with glass.

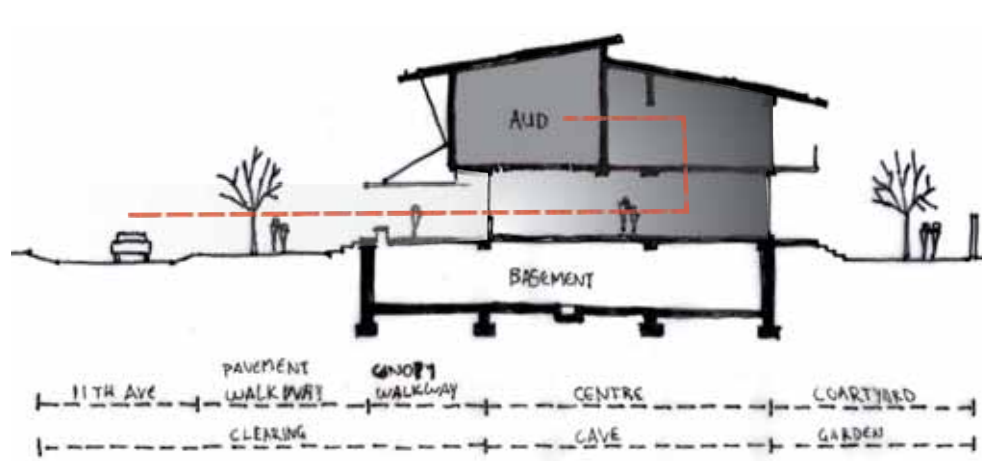


Figure 6.13: Progression section

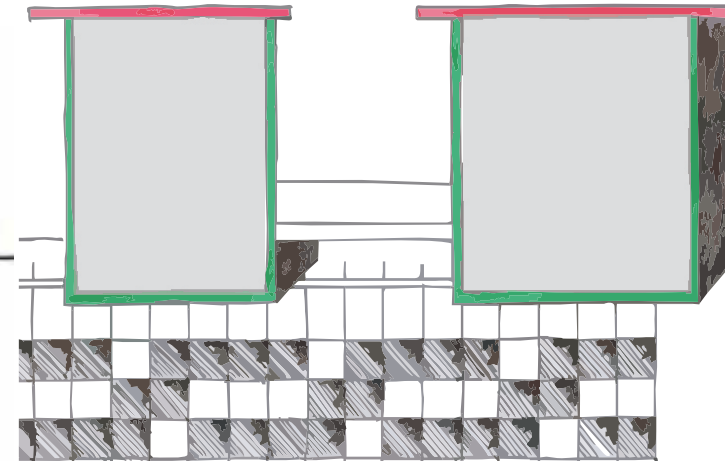


Figure 6.15: Duality between dark and light - plan



Figure 6.14: Hierarchy: experimenting with the height of the walkway

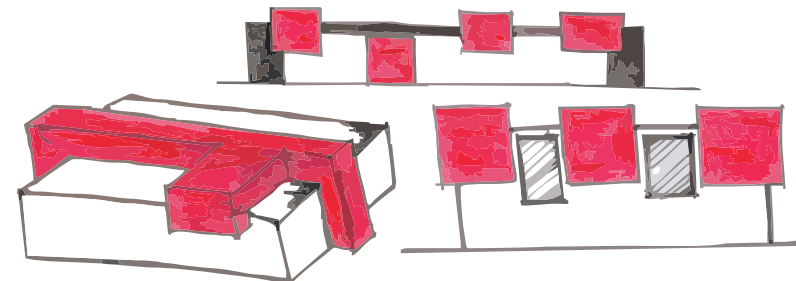


Figure 6.16: Hierarchy: experimenting with the importance of the auditoriums

## 2.4 - THE NOTICE BOARD

The notice board is a simple way of informing the public by pinning up information for everybody to view. Normally, notice boards are used at corporate or education institutions and also next to the road in the form of billboards. The western facade of the proposed building creates an opportunity to inform and educate the pedestrians as they pass. Three mediums are used to inform and educate:

### 1 - BENCHES:

The benches are located on the pavement walkway with a double-sided glass panel down the centre. Anything can be placed between the glass panels, including the daily newspaper.

### 2 - CANVAS:

The western facades of the auditoriums and the canopy have been designed as display canvases towards the pavement walkway and the road. The canvases will be created by the illustrator students with monthly themes and educational messages.

### 3 - GLASS WALL:

The western facade of the ground floor is a frameless glass wall with benches. These glass panels make it possible for the pedestrian to view the interior of the building, showing the pedestrian the possibilities of using the centre. It is also possible to use the glass panels as a notice board. A thin grid of A4 rectangles will be sandblasted on the inside of the glass panels. The students can put up their work on the inside of the glass panels for the passer-by to see.

### EXHIBITIONS:

It is possible to use the benches, canvases and glass panels for outdoor exhibitions. These exhibitions can be visited by schools or the public without any internal interruption at the centre.

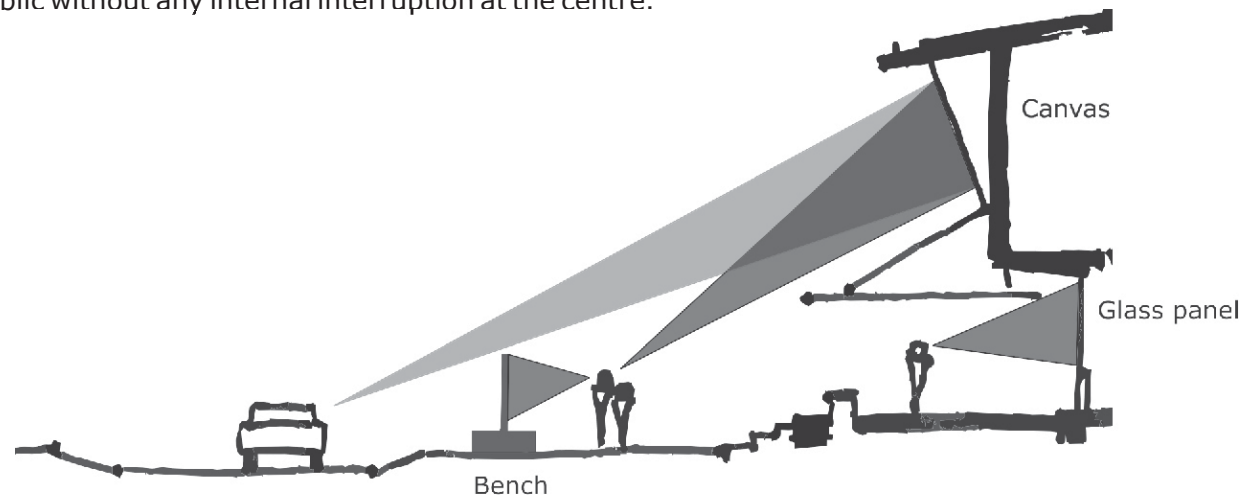


Figure 6.17: Notice board section



Figure 6.18: Entrance of Boukunde building at the University of Pretoria (author 2007)

### 3 - DEVELOPMENT OF THE DESIGN

#### THEME OF THE RESEARCH:

ORIGINAL CONCEPT: The original concept of the research addressed only the distribution and storage of books.

FINAL CONCEPT: After much thought and investigation, the author realised that there is a greater need to educate the illiterate adults of Tshwane. A person can't read a book if he or she is illiterate, and therefore a literacy enhancement centre was chosen as the theme.

#### CLIENT:

ORIGINAL CONCEPT: Centre for the Book, which is a specialist unit of the National Library and mainly distributes books to rural areas.

FINAL CONCEPT: With the theme change to literacy, the author investigated the ABET (Adult Basic Education and Training) programme which is run by various institutions all over Tshwane. The Ministerial Committee on Literacy, a government initiative to combat illiteracy, was selected as the client of the proposed centre. The committee is made up of various organisations and funded by the Minister of Education.

#### FACILITY:

ORIGINAL CONCEPT: The original function of the centre was a library and a storage space for books.

FINAL CONCEPT: Auditoriums to educate illiterate adults, a reading room and study hall to read as well as a writing and illustrator school.

#### TECHNOLOGY:

ORIGINAL CONCEPT: A high-tech approach was chosen with computers and electronic screens and no human interaction.

FINAL CONCEPT: A humanist approach with only the basic elements, including chairs, desks and notice boards.

#### VISIBILITY:

ORIGINAL CONCEPT: Because of the western facade, the front of the building was screened with a solid canopy and enclosed the building towards the street.

FINAL CONCEPT: Better methods of screening are used to open the building towards the street. Pedestrians can observe inside the building and read the messages on the glass panels as they pass. The screen above the walkway is lowered to a human scale and allows for canvas notices above.

#### PRIVACY:

ORIGINAL CONCEPT: The building was enclosed towards the street and open on the inside with no provision for privacy or a place for relaxation.

FINAL CONCEPT: The western screen is dissolved, which opens the building to invite the public to enter. The public reading room is located on the ground floor and the private auditoriums are located on the first floor. Courtyards are located behind the building for relaxation.

### 3.1 - DEVELOPMENT MODEL 1

The first concept was to use three different buildings linked by ramps. The buildings were elevated, with no relation to the ground level. The distances between the buildings and the lengths of the ramps resulted in long walking distances. The complex consisted of a library, a media centre and a bookshop, functions that are provided at many other establishments all over Tshwane.

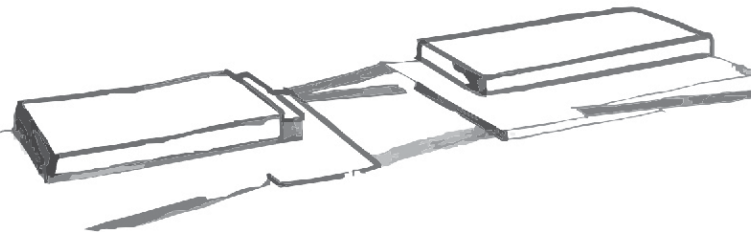
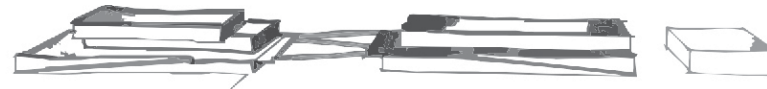
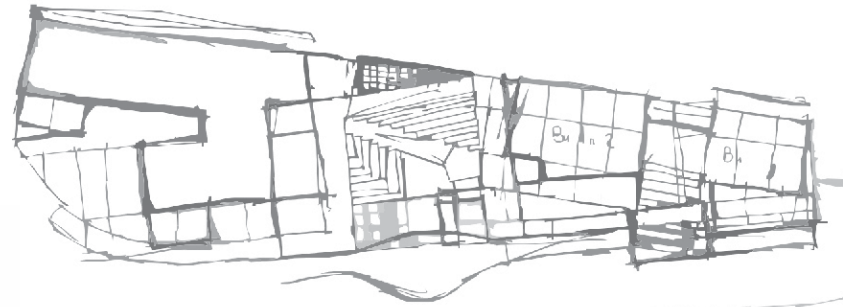
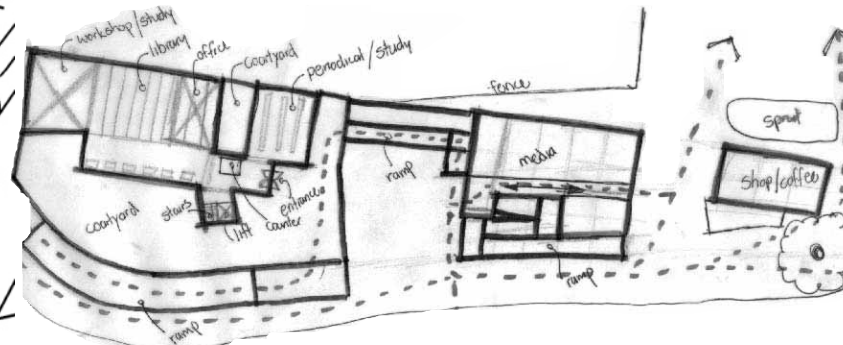
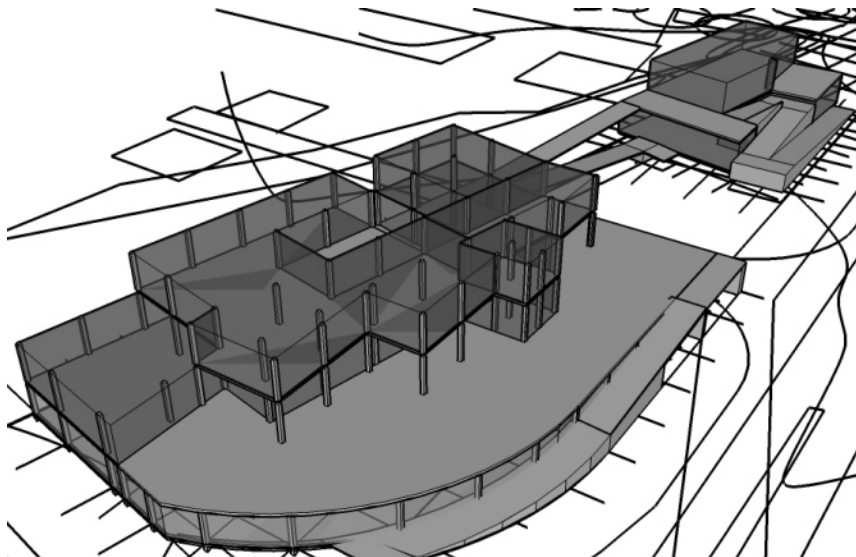


Figure 6.19: Development model 1 sketches



### 3.2 - DEVELOPMENT MODEL 2

The second concept consisted of the same functions as the first. One building was used with a double-volume lobby to link the functions. The entrance was visually closed by a screen wall and the rest of the front facade by a canopy. The building had no connection with the surroundings, with the passing pedestrian or with nature. Passive climate control or sun shading was not taken into consideration.

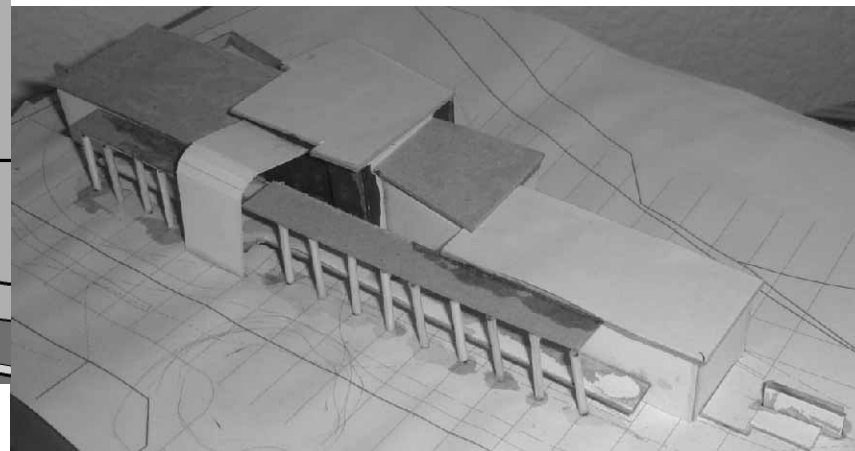
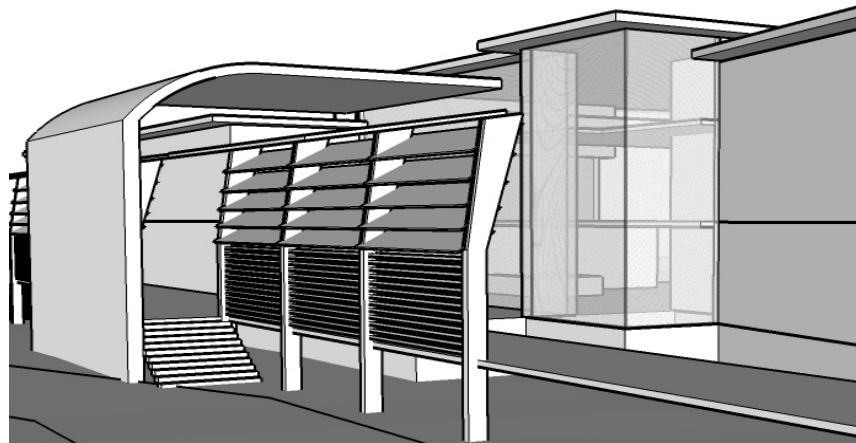
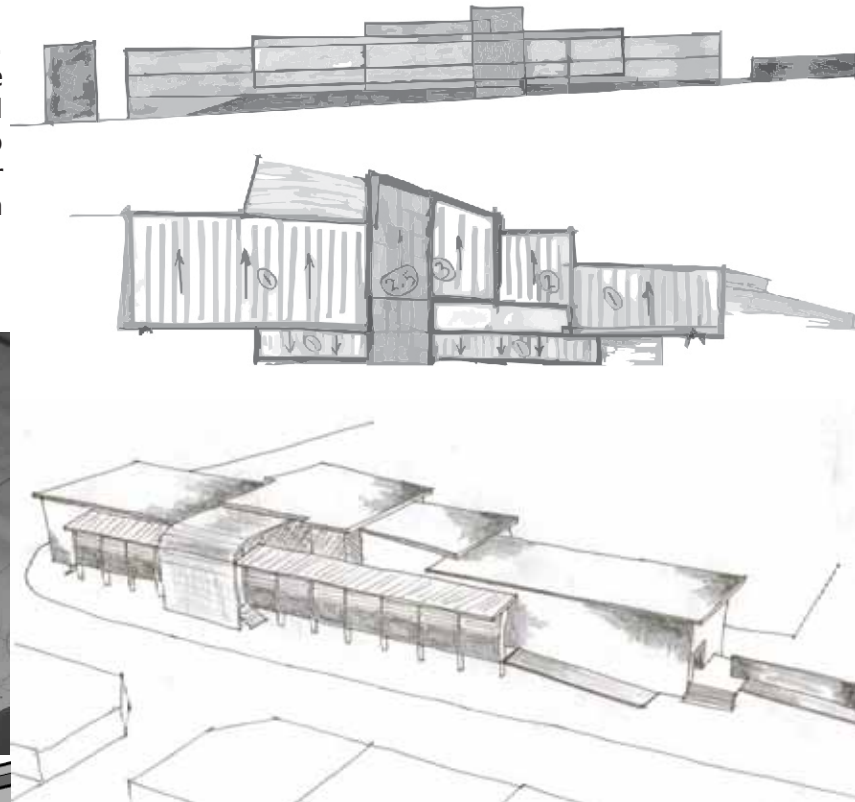
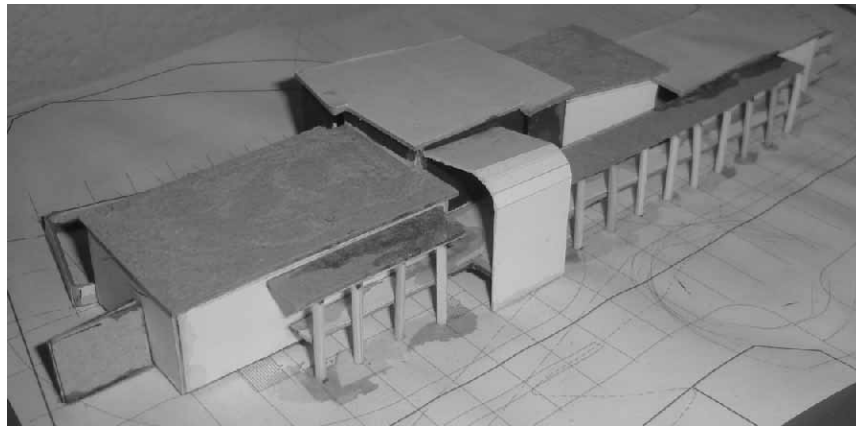


Figure 6.20: Development model 2 sketches

### 3.3 - DEVELOPMENT MODEL 3

The third model was a variation of the second, with some technical modifications. The canopy was more prominent, with no relation to human height. The main functions of the building changed to a library, study hall and hovering auditoriums. There was still no relation with the surroundings or a prominent concept.

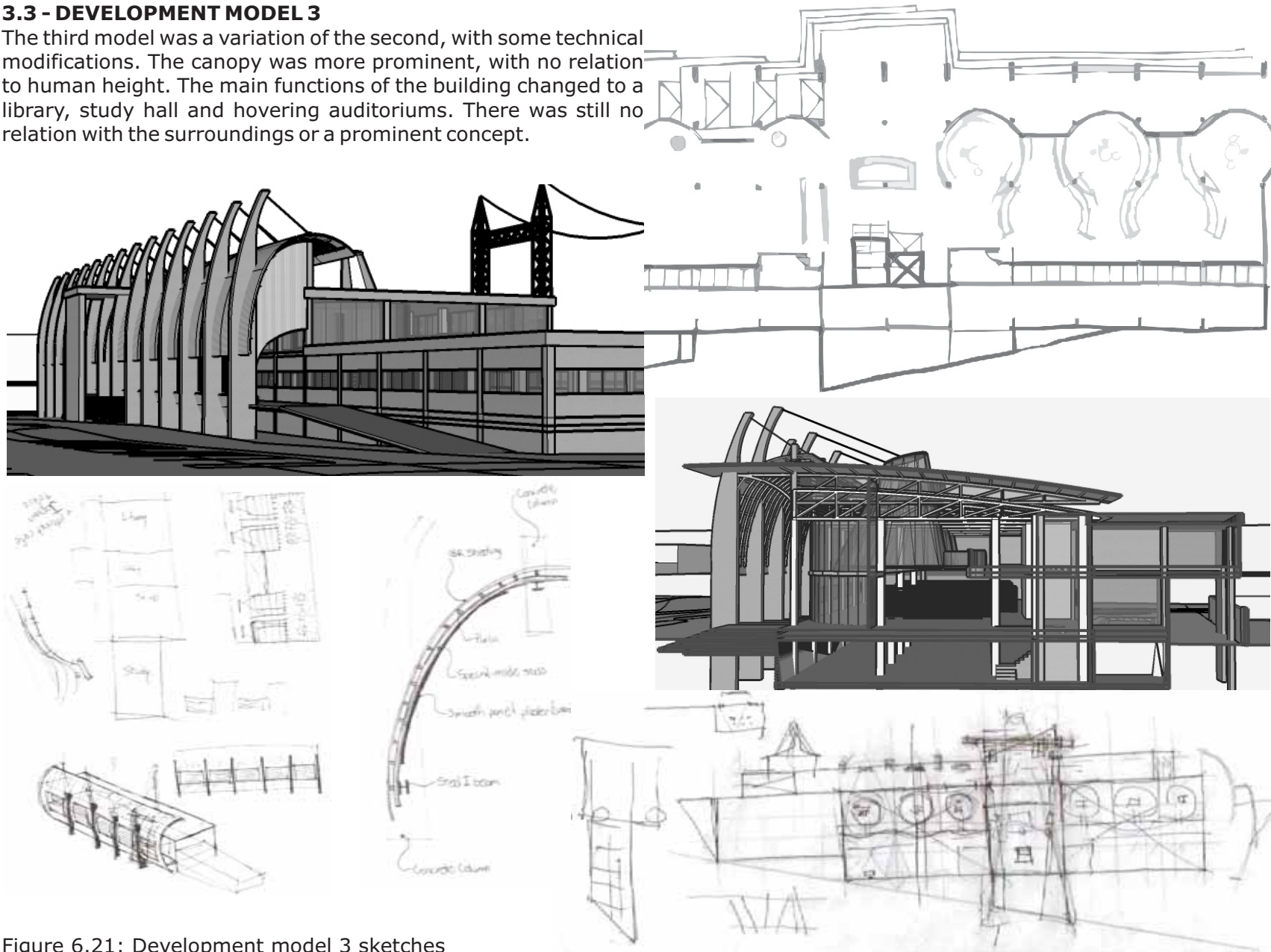


Figure 6.21: Development model 3 sketches

### 3.4 - DEVELOPMENT MODEL 4

The last concept had no relation to its predecessors. With a better understanding of the problem, the site and the discovery of the archetypes, a strong conceptual design was formulated. The building was in relation with the passing pedestrians, the surroundings and nature. By trial and error, the building was designed to passively control temperature by means of various solutions like sun screens. All the materials, the construction methods and the shapes were been designed and chosen for specific reasons.

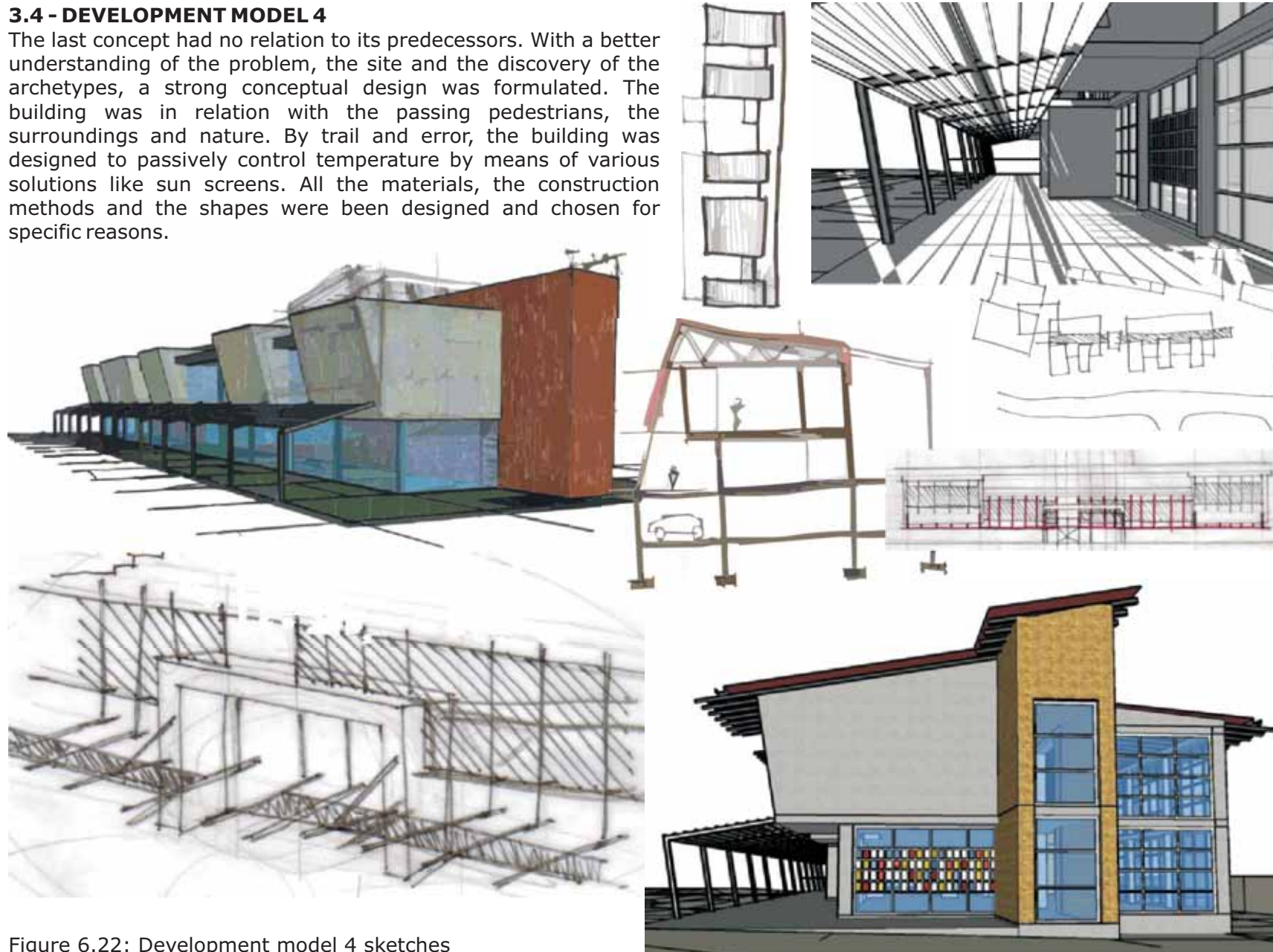


Figure 6.22: Development model 4 sketches

## 4 - FINAL DESIGN

### 4.1 - THE GRID AS GENERATOR

#### HORIZONTAL:

The structural grid for the proposed building is based on the parking layout in the basement. The grid consists of 5,5 x 5,5 m and 5,5 x 7,7 m spacings. The ground and first floor are respectively layered above the basement, with the structural columns positioned on the intersections of the grid. The grid is not confined by the building walls and repeats in the surrounding landscape with variations of concrete, grass and paving surfaces.

#### VERTICAL:

The continuous plane of the front facade is interrupted with recessed planes, varying heights and different materials. These variations create the illusion of multiple buildings built side-to-side as seen in the rest of Marabastad.

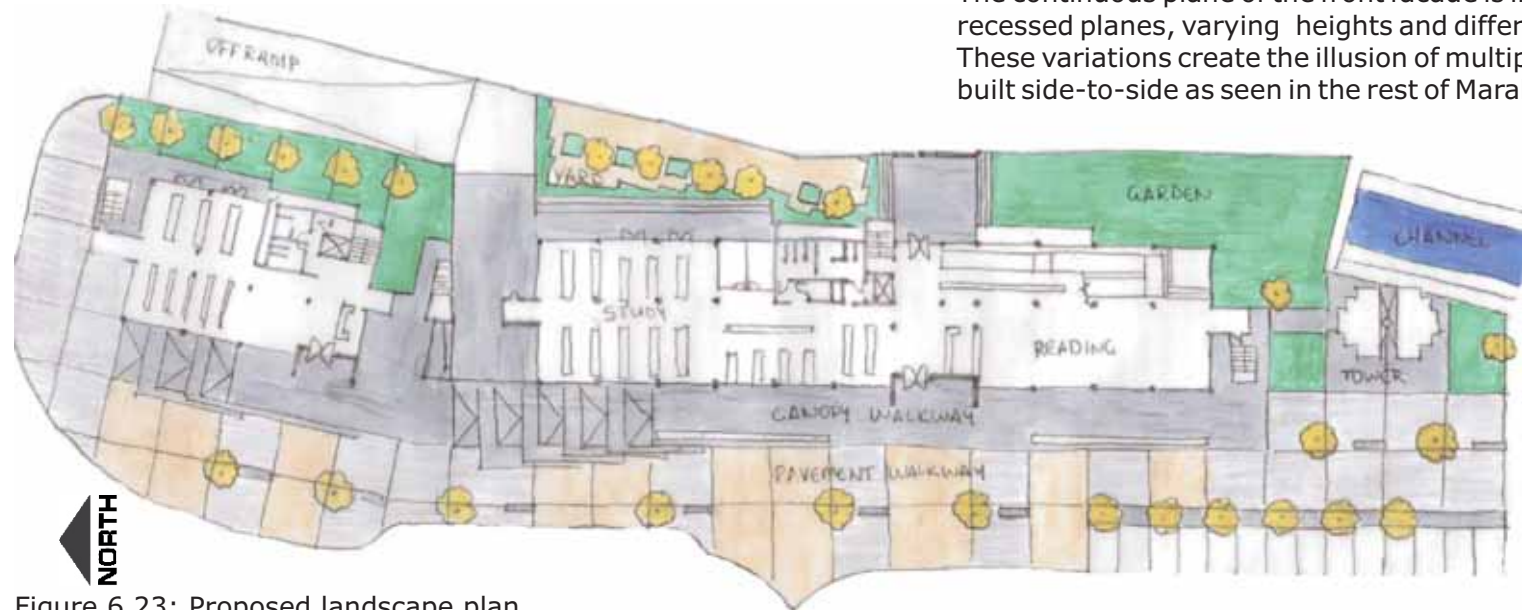


Figure 6.23: Proposed landscape plan

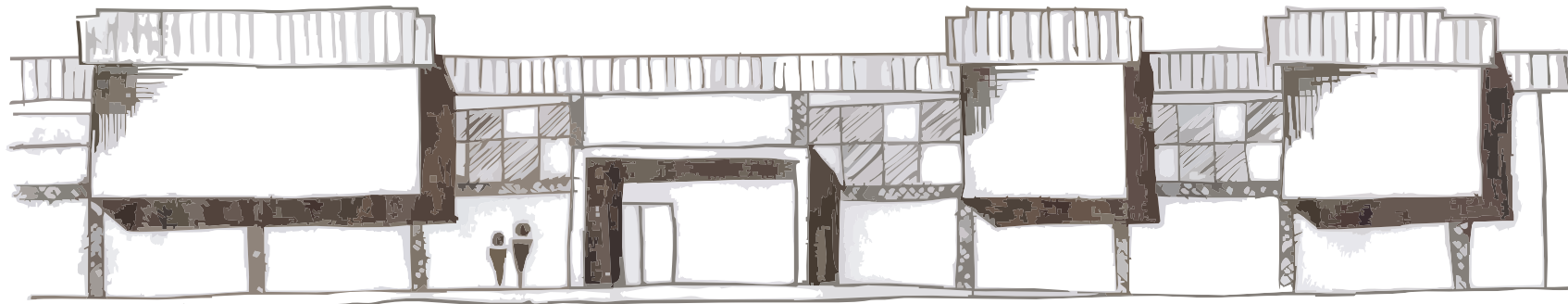


Figure 6.24: Grid influence on proposed front elevation



#### 4.2 - THE SKIN OF THE BUILDING

Five different elements have been used. The western facade is screened against the sun with louvres and a frameless glass wall is used to optimise visibility. The north-eastern part of the building is allocated to office use with aluminium shop fronts with adjusting windows. The ramp is located on the south-eastern side and screened by Winblok windows. The depth of the Winblok window shades the interior and still allows visibility. The entrance is a concrete box with a glass door. The concrete box defines the entrance and screens the lobby for privacy. The service area is screened with a face-brick wall with randomly placed windows. The different materials break the rectangular building to create a more exciting and enriched design.

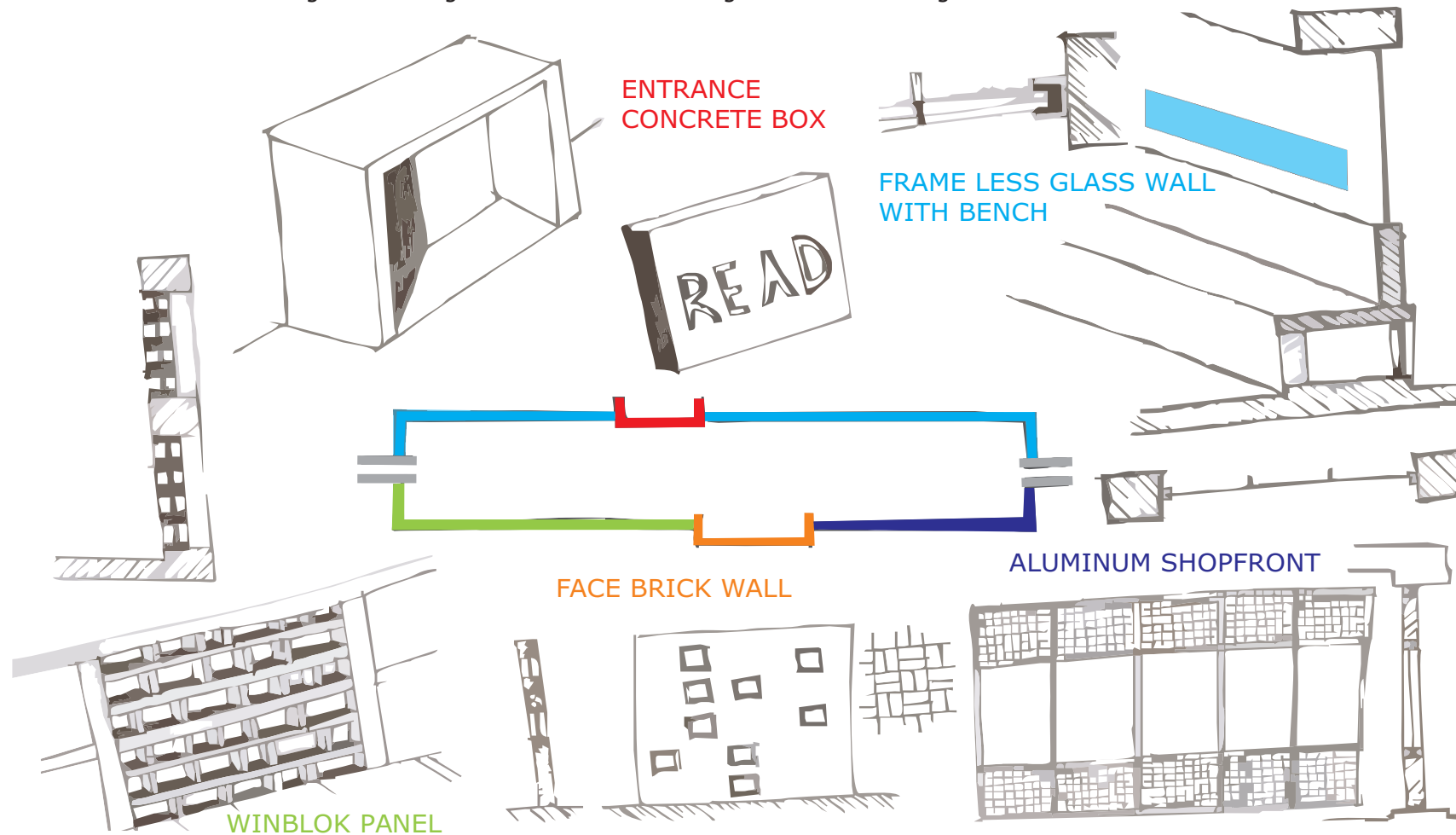


Figure 6.25: Concept of building skin

### 4.3 - BUILDING USERS:

#### THE ILLITERATE:

The illiterate adult learns how to read, write and count with the ABET system.

The facility provided: Auditoriums that allow for isolated and private learning opportunities. The ABET system demands individual attention, which suggests a class consisting of about 15 students. For this reason, the auditoriums are divided into 2 sizes; the smaller rooms can facilitate 16 people and the bigger rooms 32. The auditoriums can also be used for workshops, lecture halls or as boardrooms for the community.

#### THE SEMI-LITERATE:

The existing school or tertiary student and the literate public can use the facility on a daily basis.

The facility provided: A study hall and a computer lab for the existing student. Currently, students stand in queues at local libraries all over Pretoria for a seat and desk to study. A more informal reading room with relevant reading material is also provided. A pedestrian waiting for his bus or a local employee on his lunch break can relax and read the daily newspaper, magazines or a book.

#### THE POTENTIAL WRITER:

The literate student who wants to be a writer or illustrator of mainly adult literacy and/or children's books.

The facility provided: A school with studios and a library with relevant information. The auditoriums for the illiterate will be used for the student's formal lectures. The potential writers can be trained and used as teachers for the illiterate classes.

#### THE MINISTERIAL COMMITTEE ON LITERACY:

This committee is assigned to the national literacy campaign by the Minister of Education. The committee aims to reach 4,7 million illiterate or functionally illiterate adults by 2012. The committee is represented by various bodies and organisations and has no formal location.

The facility provided: Office space on the 1st floor; the auditoriums could be used for meetings.

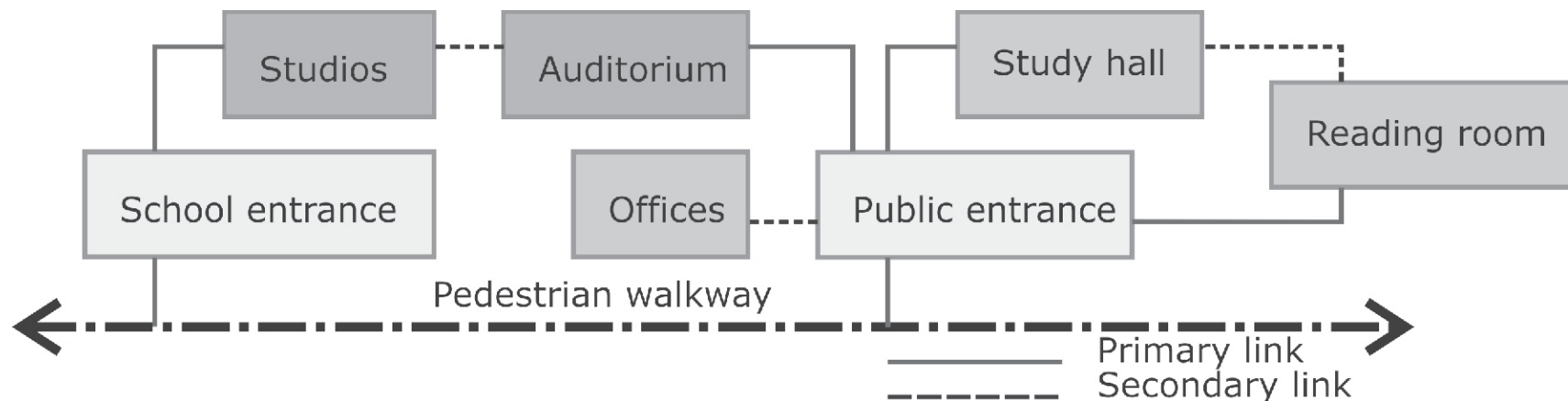


Figure 6.26: Building occupation diagram



#### 4.4 - LAYOUT PLAN

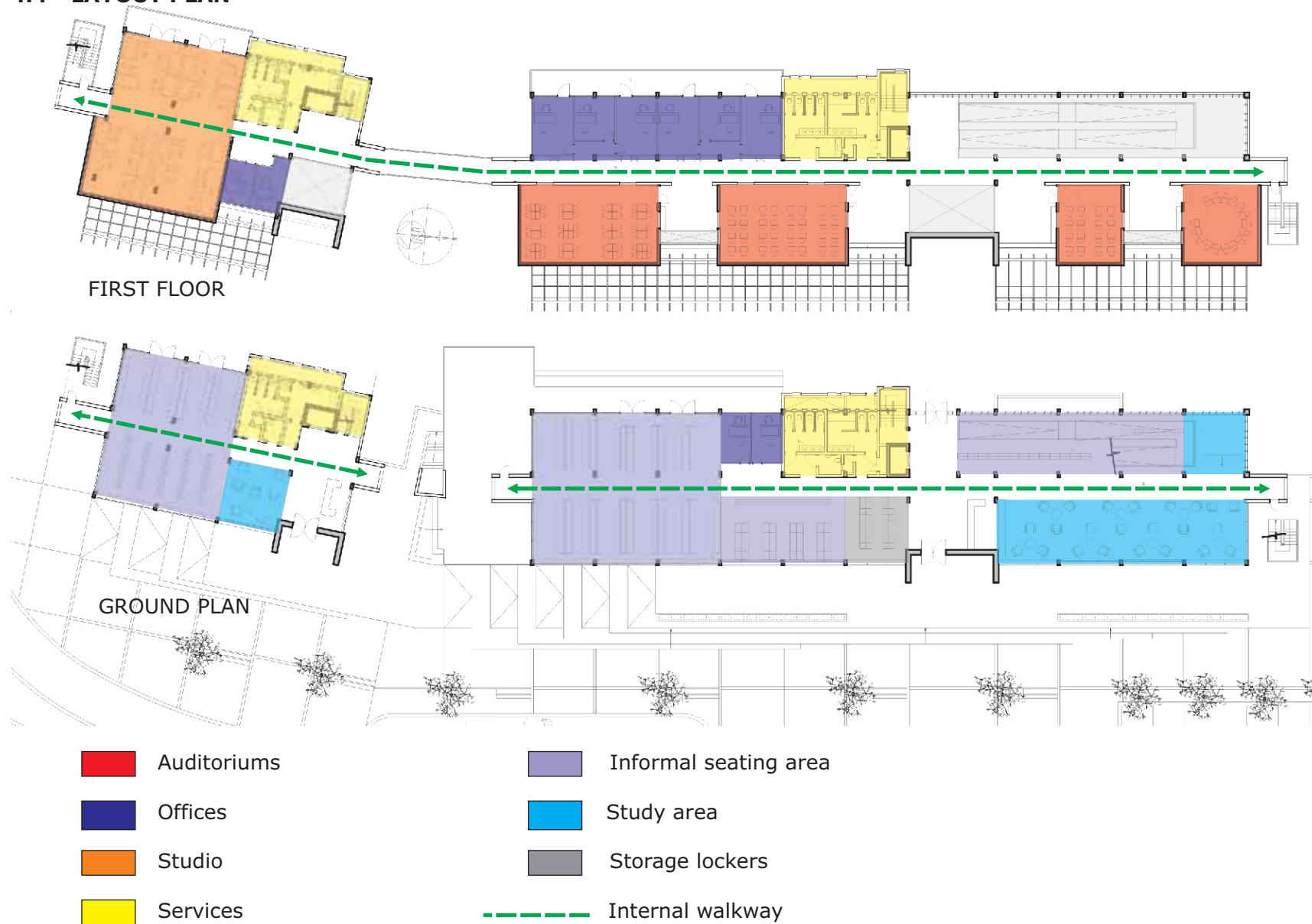


Figure 6.27: Layout plan



### 4.5 - MOVEMENT PLAN

- - - - - Pavement walkway pedestrians
- - - - - Canopy walkway pedestrians
- - - - - Public user
- - - - - Student user

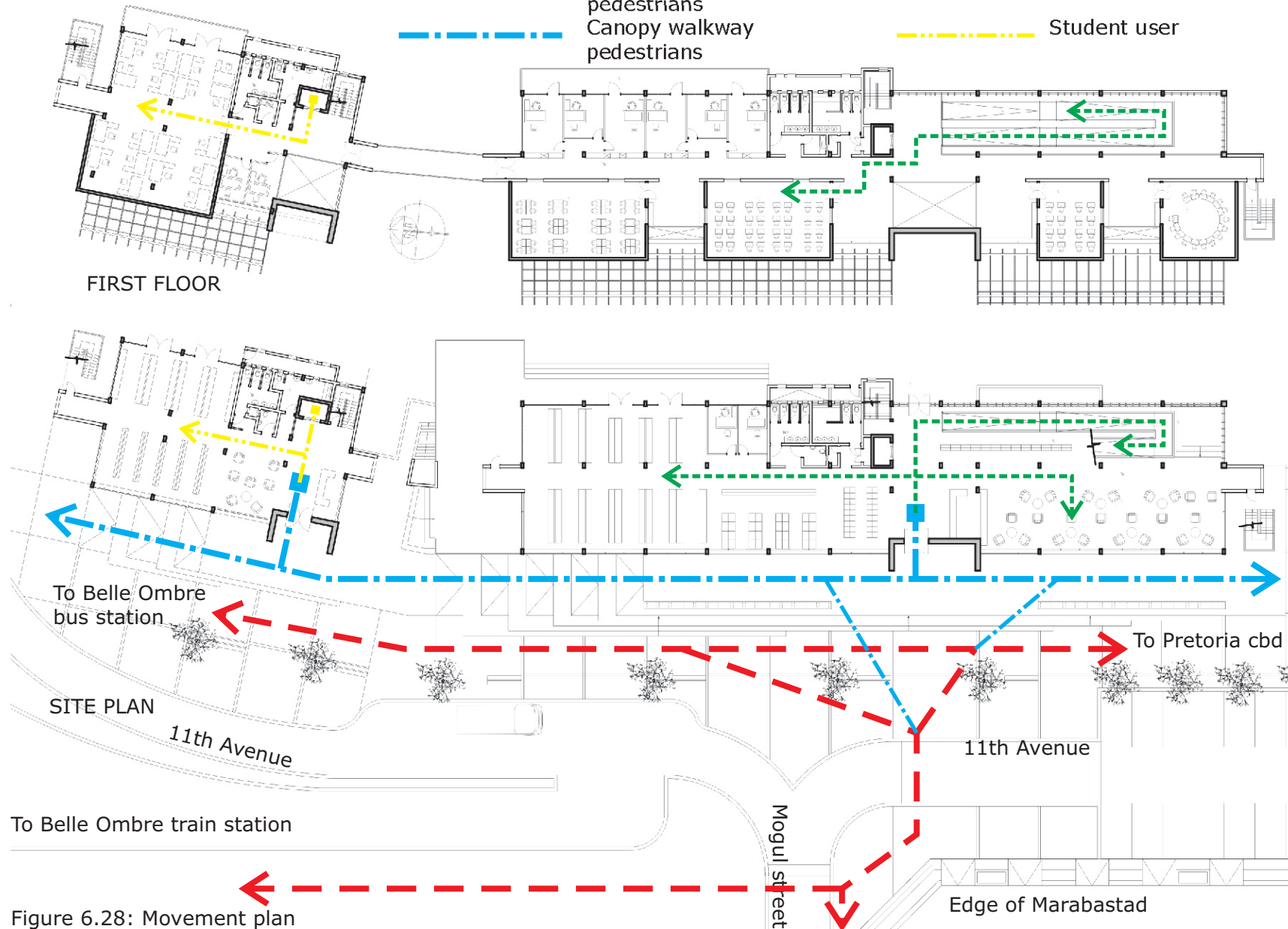


Figure 6.28: Movement plan

#### 4.6 - PROGRESSION

##### 4.6.1 - THE BUILDING

The table below explains the idea of progression of importance, design elements, usage and facilities

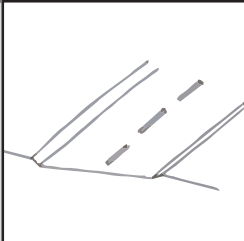
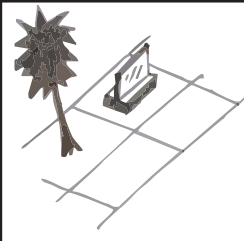
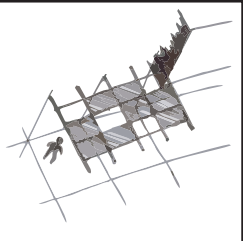
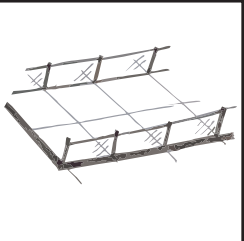
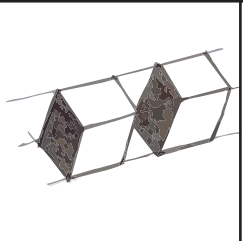
	Public		Private			
	Light		Dark			
	Open		Closed			
<b>Description</b>	11th Avenue	Pavement walkway	Canopy walkway	Public building	Auditoriums and offices	Courtyards
<b>Archetype</b>	The clearing			The cave		The garden
<b>Privacy</b>	Public	Public	Semi - public	Semi - private	Private	Semi - private
<b>User</b>	Mainly taxis	Pedestrians	Pedestrians	Reading public	Illiterate adult	Public
<b>Facility</b>	Road and parking	Benches	Benches and louvres	Reading and study	Classroom, lectures	Informal seating
<b>Objective</b>	Transport	Clear path	Path with sun protection	Study and read	Learn to read and write	Relaxation
<b>Material</b>	Road surface	Pavement and trees	Steel grid canopy	Glass and concrete	Solid concrete	Lawn and trees
<b>Shape</b>						

Table 6.1: The progression of the approach

#### 4.6.2 - COMPARISON BETWEEN ABET AND APPROACHING THE BUILDING

The table and illustration below explains how the approach to the building symbolizes the progression from illiterate to literate

	Literate				
	Illiterate				
ABET progression	Can't read or write	Learn letters	Learn words	Learn sentences	Can read and write
Example	- - ----, ---- - ----.	- -a- --a-, ---- a- ----.	- can --a-, ---- and ----.	I can read, write and count.	
Approaching the building	Boom street See outline of building	11th avenue Distinguish grid pattern	Pavement walkway Distinguish boxes and notice boards	Canopy walkway Read writing on glass walls	Inside building Read, study or learn

Table 6.2: Approaching the building

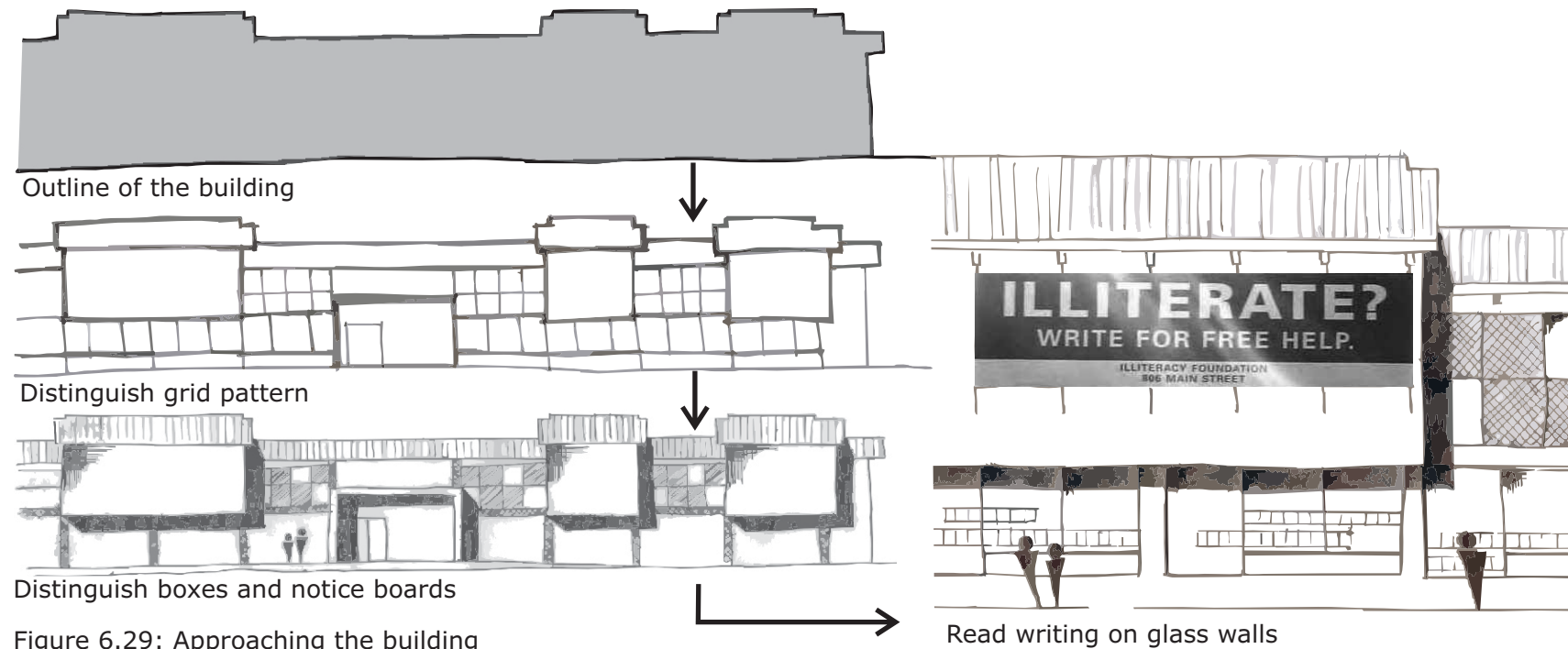


Figure 6.29: Approaching the building

## 5 - PERSPECTIVES

### 5.1 - LAYOUT PLAN INDICATING VIEW POSITIONS

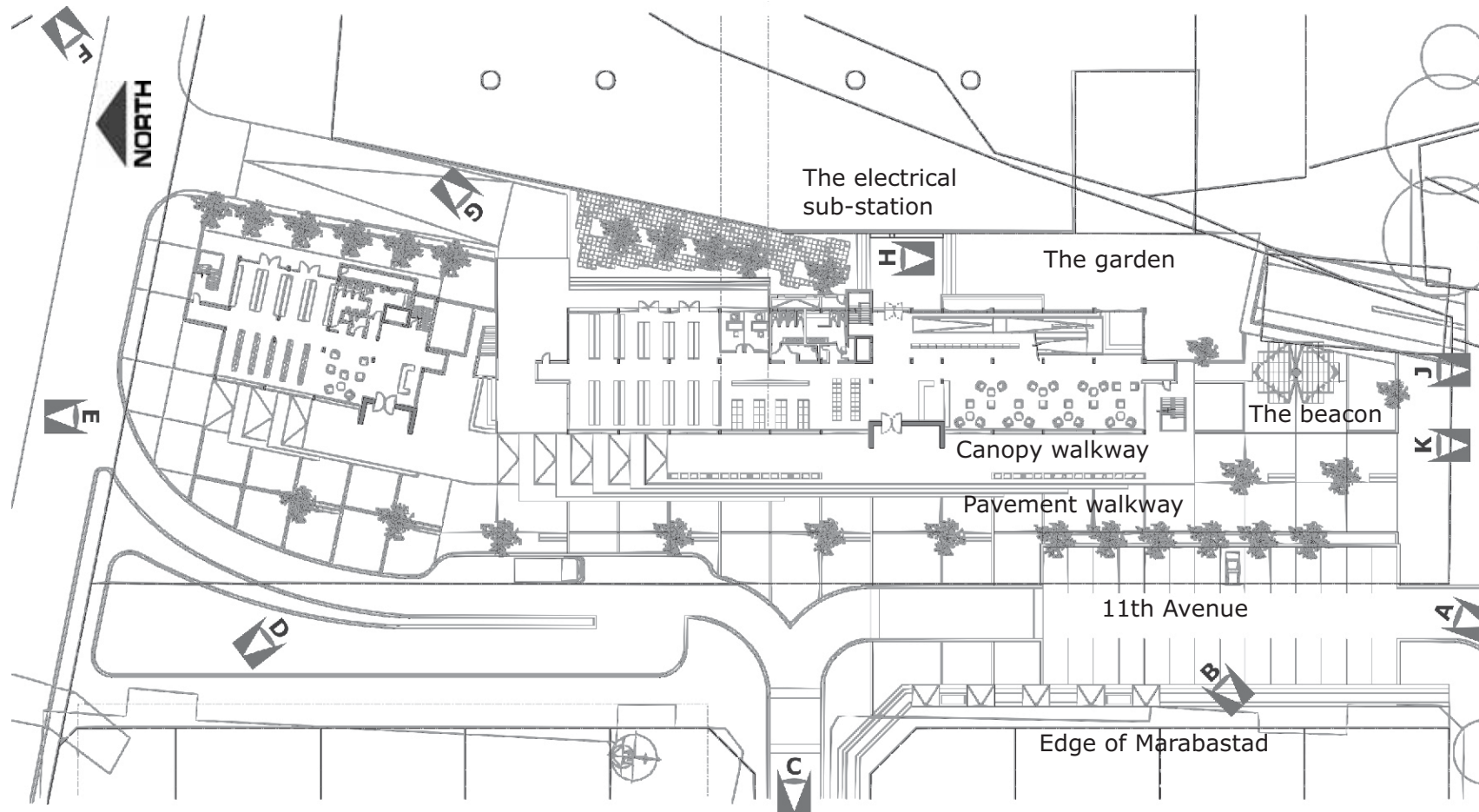


Figure 6.30: Layout plan with perspective angles

## 5.2 - GENERAL VIEWS

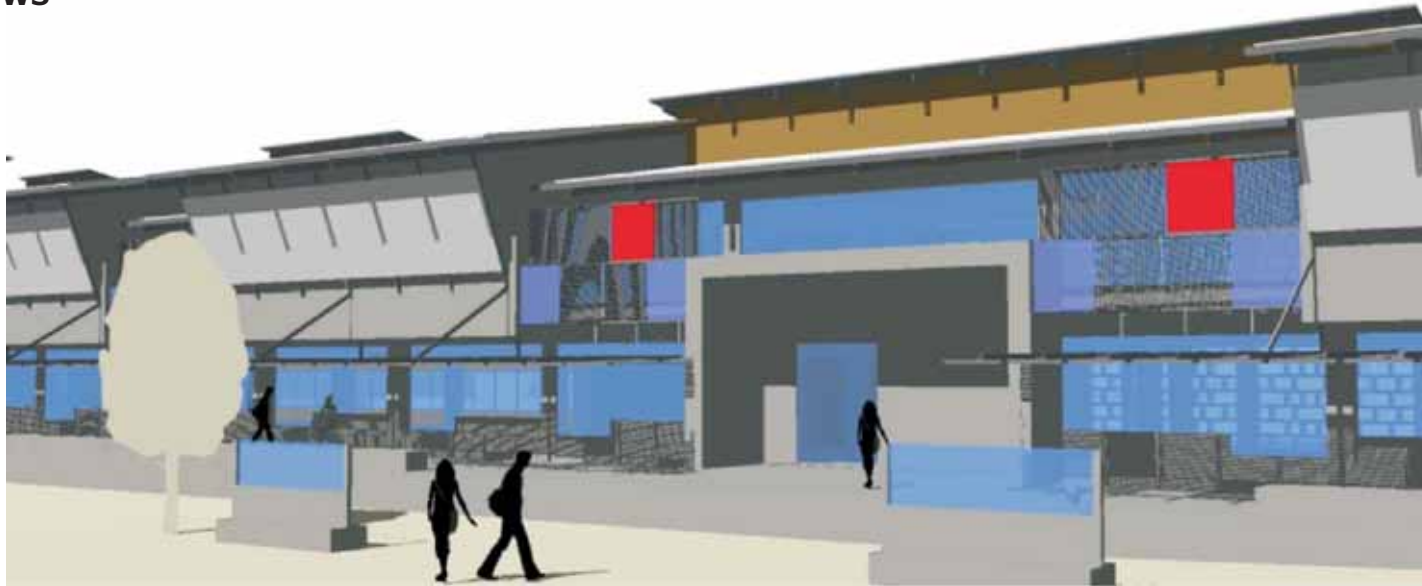


Figure 6.32: Perspective BB - The entrance



Figure 6.31: Perspective AA - View from Boom Street



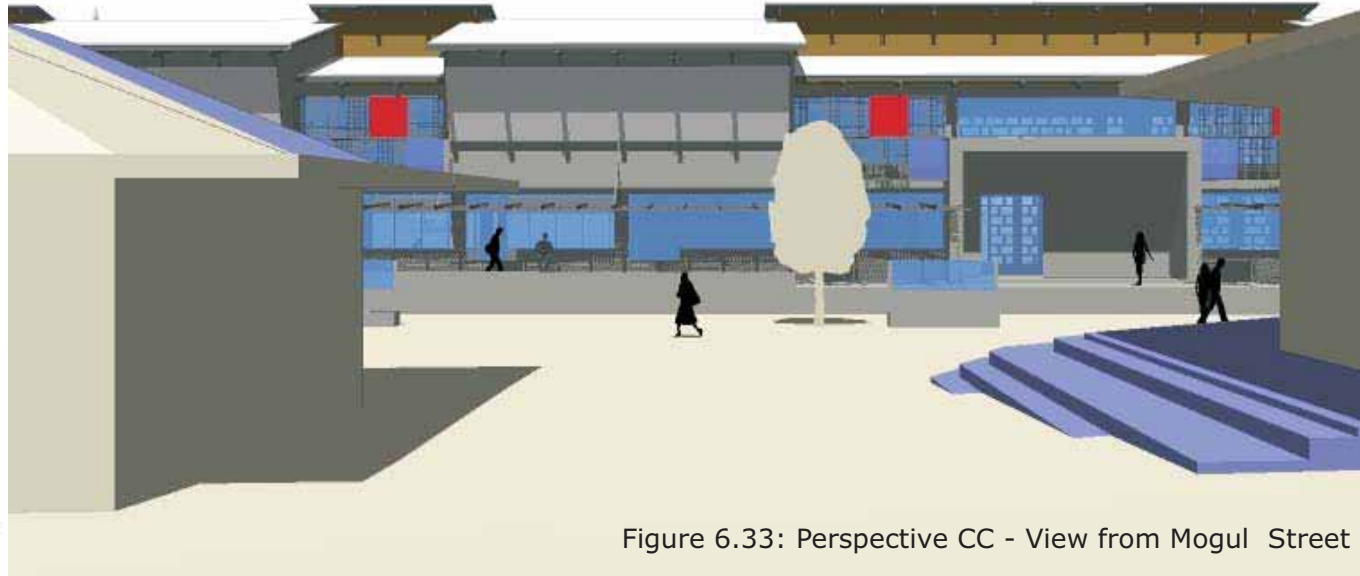


Figure 6.33: Perspective CC - View from Mogul Street

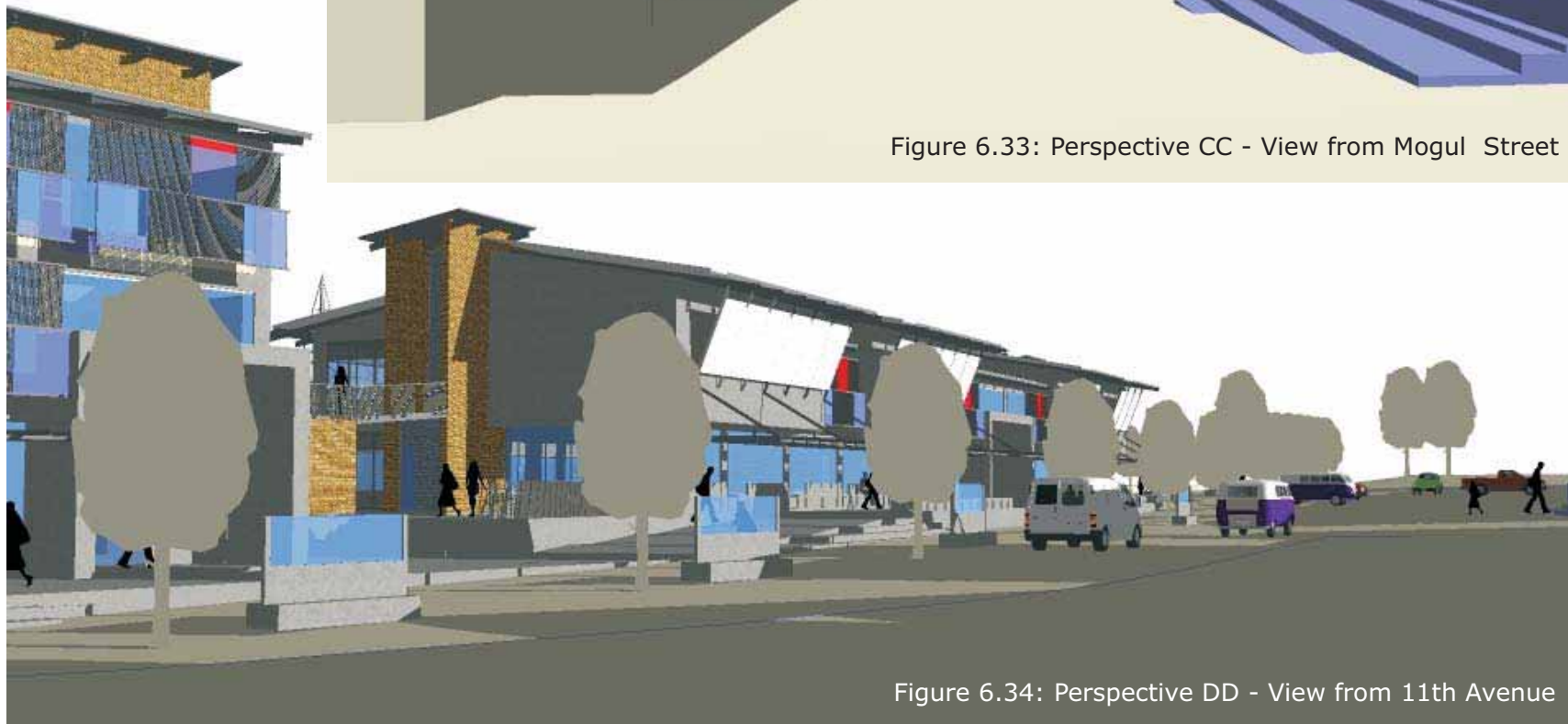


Figure 6.34: Perspective DD - View from 11th Avenue



Figure 6.35: Perspective EE - Approaching the school



Figure 6.36: Perspective FF - View from bus station

Figure 6.37: Perspective GG - Approaching the bridge between the buildings

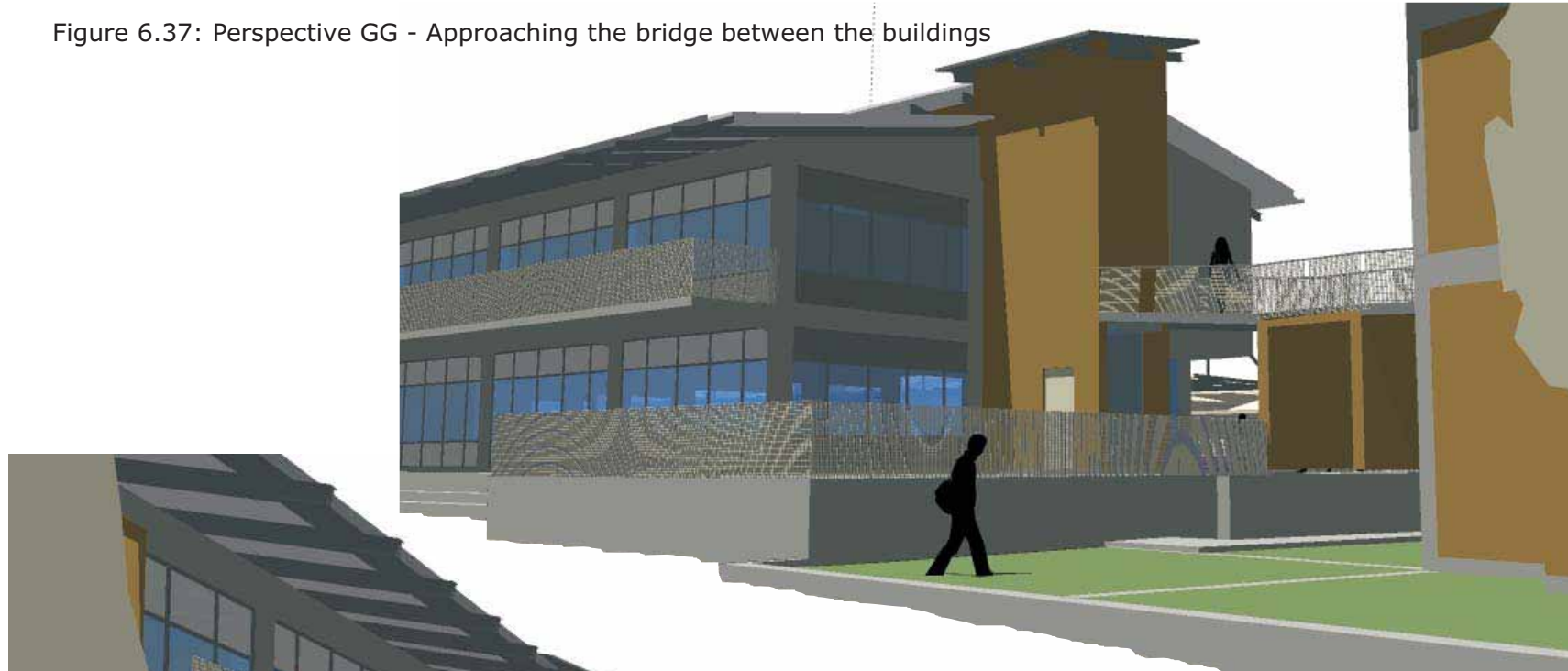


Figure 6.38: Perspective HH - View from the garden



Figure 6.40: Perspective KK - Relation between the walkways and building

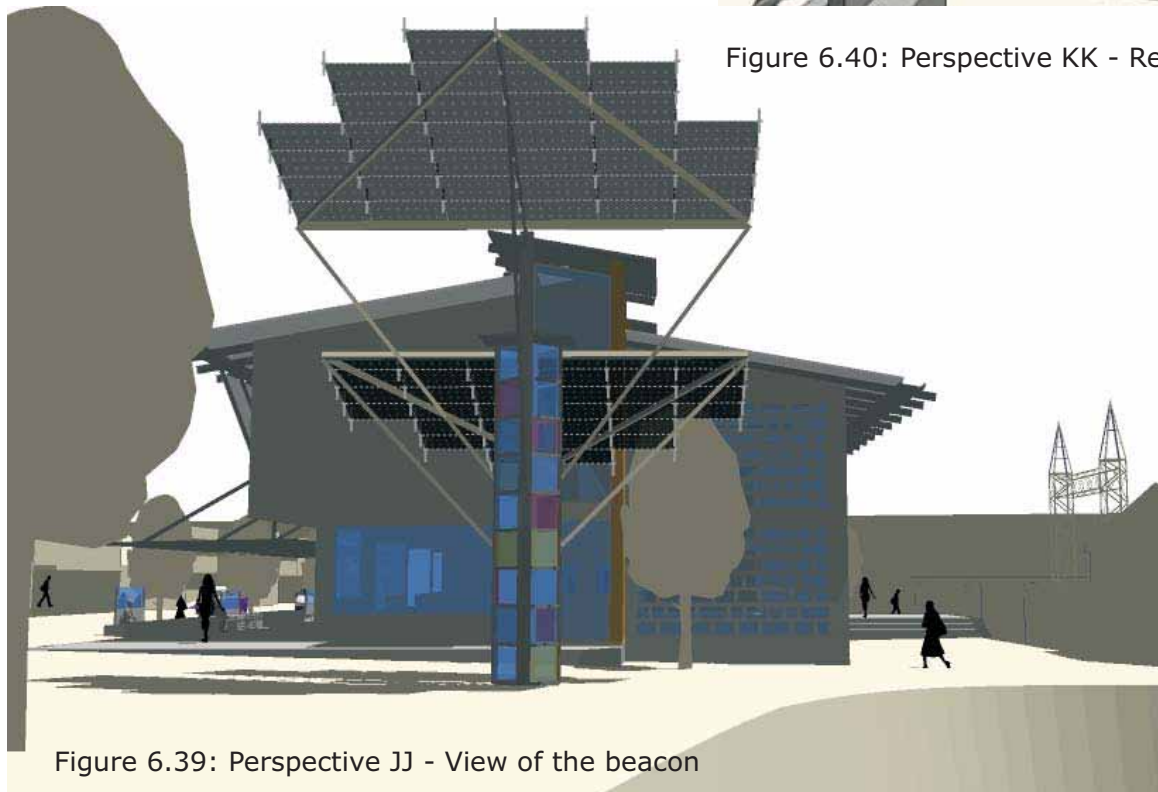
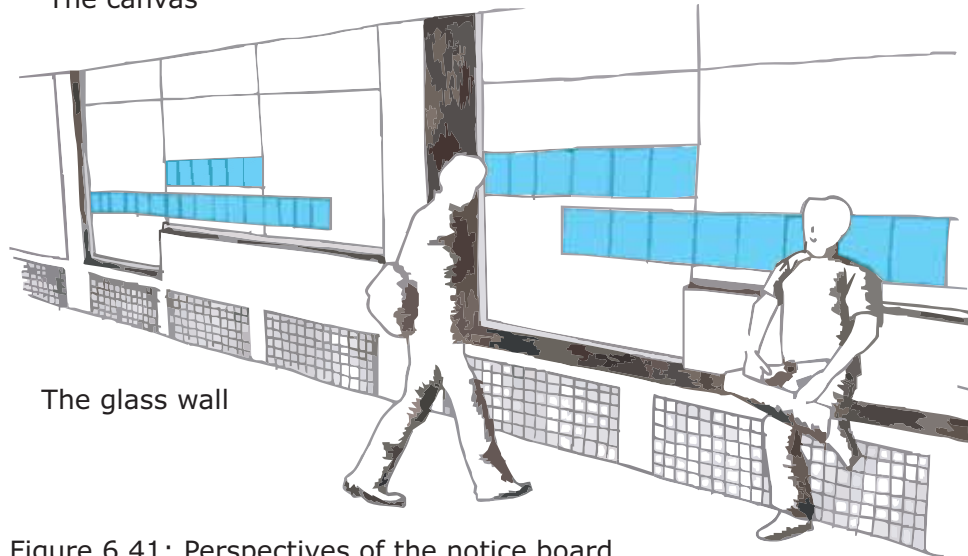


Figure 6.39: Perspective JJ - View of the beacon

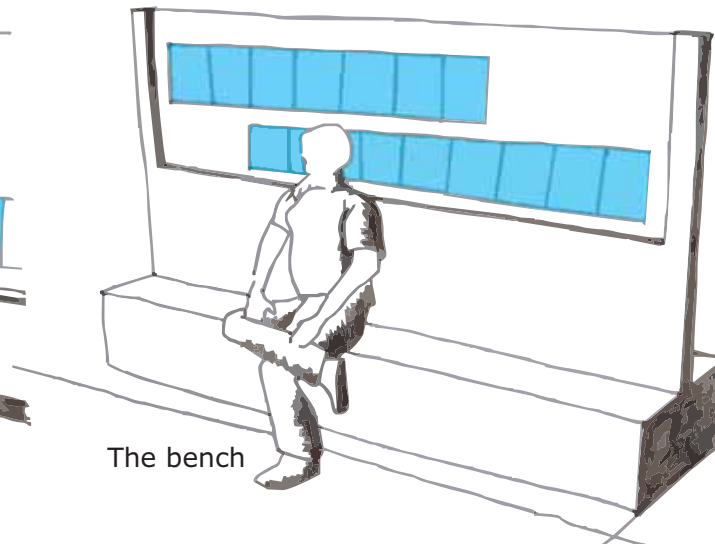
### 5.3 - THE NOTICE BOARD



The canvas



The glass wall



The bench

Figure 6.41: Perspectives of the notice board