

LITERACY ENHANCEMENT CENTRE

Colin Christiaan Strydom
Study leader: Mr Piet Vosloo

Submitted in partial fulfilment of the requirements
for the degree of MArch(Prof) in the faculty of
Engineering, the Built Environment and Information
Technology, University of Pretoria, South Africa

November 2007



ABSTRACT

The majority of adults in the Tshwane municipal area have limited or no literacy or numeracy skills. Illiterate adults live mainly in marginalised townships and informal settlements across Tshwane. The relocation of people away from the opportunities offered by the city centre in the past forms part of the reason for the illiteracy problem. Various institutions have started programmes to enhance literacy, but the number of people and the wide distribution of the settlements complicate these efforts (Ministerial Committee on Literacy: 2007).

The aim of this dissertation is (among others) to investigate the best possible location for the development of a literacy enhancement centre. Such a centre should be on a major commuter route to ensure that passers-by benefit from the facility and that it is accessible to the general public. The centre should take cognisance of its surrounding location, be approachable in design, both internally and externally, and take into account all factors related to literacy.

TABLE OF CONTENTS

Abstract	i		
01 INTRODUCTION	01 - 01		
1. BACKGROUND	(01-02)	2.3 LAYOUT PLAN	(03-08)
2. PROBLEM STATEMENT	(01-02)	2.4 HISTORICAL CONSERVATION AREA	(03-09)
3. RESEARCH METHODS	(01-03)	2.5 TRANSPORT FACILITIES	(03-10)
4. ASSUMPTIONS	(01-04)	2.6 IDENTIFYING A CENTRAL POINT BETWEEN THE TRANSPORT FACILITIES	(03-11)
5. DELIMITATIONS	(01-04)	2.7 IDENTIFYING THE SELECTED SITE	(03-12)
6. OBJECTIVE OF STUDY	(01-04)		
7. DISSERTATION PROCESS LAYOUT	(01-05)	04 SITE ANALYSIS	04 - 01
02 LITERACY ENHANCEMENT	02 - 01	1. INTRODUCTION	(04-02)
1. INTRODUCTION - WHAT IS LITERACY?	(02-02)	2. LAND LEGAL STATUS	(04-03)
2. WHY IS THERE AN ILLITERACY PROBLEM?	(02-02)	3. PEDESTRIAN MOVEMENT - PLAN	(04-03)
3. WHO ARE THE ILLITERATE?	(02-03)	4. PEDESTRIAN MOVEMENT - ELEVATION	(04-04)
4. WHERE ARE THE ILLITERATE LOCATED?	(02-04)	5. INFLUENTIAL ELEMENTS	(04-06)
5. WHAT IS BEING DONE TO ENHANCE LITERACY AT PRESENT?	(02-05)	6. SECTIONS THROUGH ERF 668	(04-09)
6. WHAT WILL BE DONE TO ENHANCE LITERACY IN FUTURE?	(02-05)	05 PRECEDENTS	05 - 01
7. CONCLUSION	(02-07)	1. INFLUENTIAL ARCHITECT	(05-02)
03 CONTEXT ANALYSIS	03 - 01	2. LAYERING AND PROGRESSION	(05-04)
1. MACRO SCALE - PRETORIA	(03-02)	3. LIBRARY	(05-06)
1.1 INTRODUCTION	(03-02)	4. ADULT ILLITERACY CENTRE	(05-08)
1.2 DEVELOPMENT HISTORY	(03-02)	5. MATERIALS	(05-10)
1.3 TRANSPORT ROUTES TOWARDS WORK OPPORTUNITIES	(03-03)	06 DESIGN DEVELOPMENT	06 - 01
1.3.1 TSHWANE	(03-03)	1. DESIGN PHILOSOPHY: ARCHETYPES	(06-02)
1.3.2 PRETORIA CBD	(03-04)	1.1 THE SEARCH FOR AN APPROACHABLE BUILDING	(06-02)
2. MESO SCALE – MARABASTAD	(03-05)	1.2 ARCHETYPES	(06-03)
2.1 INTRODUCTION	(03-05)	1.3 ARCHETYPES OF SHELTER	(06-03)
2.2 HISTORY	(03-06)	1.4 ARCHETYPES OF DESIGN	(06-05)
		2. DESIGN INFLUENCES	(06-06)
		2.1 THE NORTH-SOUTH AXIS	(06-06)
		2.2 THE EXISTING GRID	(06-07)



2.3 ARCHETYPES	(06-08)	1.4.2 MECHANICAL VENTILATION CALCULATION	(07-14)
2.3.1 ARCHETYPES OF SHELTER	(06-08)	1.4.3 THE BEACON	(07-15)
2.3.2 ARCHETYPES OF DESIGN	(06-09)		
2.4 THE NOTICE BOARD	(06-10)	2. DETAILS	(07-17)
		3. TECHNICAL DRAWINGS	(07-26)
3. DEVELOPMENT OF THE DESIGN	(06-11)		
3.1 DEVELOPMENT MODEL 1	(06-12)	08 REFERENCES	08 - 01
3.2 DEVELOPMENT MODEL 2	(06-13)	ADDENDUM A - ACCOMMODATION SCHEDULE	08 - 03
3.3 DEVELOPMENT MODEL 3	(06-14)	ADDENDUM B - BUILDING USAGE SCHEDULE	08 - 03
3.4 DEVELOPMENT MODEL 4	(06-15)	ADDENDUM C - SUSTAINABLE BUILDING ASSESSMENT TOOL	08 - 04
4. FINAL DESIGN	(06-16)		
4.1 THE GRID AS GENERATOR	(06-16)		
4.2 THE SKIN OF THE BUILDING	(06-17)		
4.3 BUILDING USERS	(06-18)		
4.4 LAYOUT PLAN	(06-19)		
4.5 MOVEMENT PLAN	(06-20)		
4.6 PROGRESSION	(06-21)		
4.6.1 THE BUILDING	(06-21)		
4.6.2 COMPARISON BETWEEN ABET AND APPROACHING THE BUILDING	(06-22)		
	(06-23)		
5. PERSPECTIVES	(06-23)		
5.1 LAYOUT PLAN INDICATING VIEW POSITIONS	(06-24)		
5.2 GENERAL VIEWS	(06-24)		
5.3 THE NOTICE BOARD	(06-29)		
07 TECHNICAL INVESTIGATION	07 - 01		
1. PASSIVE TEMPERATURE CONTROL	(07-02)		
1.1 MATERIAL	(07-02)		
1.2 PASSIVE VENTILATION	(07-03)		
1.3 SUN CONTROL	(07-04)		
1.3.1 TREATMENT OF ELEVATIONS	(07-04)		
1.3.2 HEAT TRANSMISSION PREVENTION	(07-06)		
1.3.3 ADJUSTABLE LOUVRES	(07-07)		
1.4 MECHANICAL VENTILATION SYSTEM FOR THE AUDITORIUMS	(07-13)		
1.4.1 AUDITORIUM AIR FLOW CALCULATION	(07-13)		

LIST OF FIGURES

1 INTRODUCTION

Fig 1.1: The world through the eyes of the illiterate. By author 2007	01 - 01 (01-04)
Fig 1.2: The world through the eyes of the literate. By author 2007	(01-05)

2 PROBLEM STATEMENT

Fig 2.1: Tshwane in relation to South Africa. By author 2007	02 - 01 (02-04)
Fig 2.2: Adults with no schooling, population density and general race (www.statssa.co.za)	(02-04)
Fig 2.3: Ratio of education levels in Tshwane (www.statssa.co.za)	(02-04)
Fig 2.4: Ratio of transport modes in Tshwane (www.statssa.co.za)	(02-04)
Fig 2.5: The ABET program in context (Mario Sales 2002)	(02-06)

3 CONTEXT ANALYSIS

Fig 3.1: Layout of Pretoria (Jordaan 1989)	03 - 01 (03-02)
Fig 3.2: The symbolic cross of Pretoria. By author 2007	(03-02)
Fig 3.3: Transport routes of Tshwane. (Nyeleti Consulting 2006)	(03-03)
Fig 3.4: Passenger volumes in Tshwane (Nyeleti Consulting 2006)	(03-03)
Fig 3.5: Work opportunities and transport nodes (Nyeleti Consulting 2006)	(03-04)
Fig 3.6: The boundaries of Marabastad (Marabastad framework Master's group 2007)	(03-05)
Fig 3.7: Building footprints of Marabastad. By author 2007	(03-05)
Fig 3.8: Marabastad history (1800 - 1900) (Aziz Tayob Partnership: 1998)	(03-06)
Fig 3.9: Marabastad history (1900 - 2000) (Aziz Tayob Partnership: 1998)	(03-07)
Fig 3.10: Layout plan of Marabastad. By author 2007	(03-08)
Fig 3.11: Proposed conservation area of Marabastad. By author 2007	(03-09)
Fig 3.12: Transport facilities in Marabastad. By author 2007	(03-10)
Fig 3.13: Central point between transport interlinks in relation to the conservation area. By author 2007	(03-11)
Fig 3.14: The selected site. By author 2007	(03-12)

4 SITE ANALYSIS

Fig 4.1: Primary vehicle movement around erf 668. By author 2007	04 - 01 (04-02)
Fig 4.2: SG Diagram obtained from Tshwane Municipality.	(04-03)
Fig 4.3: Pedestrian movement. By author 2007	(04-03)
Fig 4.4: Erf 668 from the western side. By author 2007	(04-04)
Fig 4.5: Edge of Marabastad across erf 668. By author 2007	(04-04)
Fig 4.6: Erf 668 from Mogul Street. By author 2007	(04-05)
Fig 4.7: View of Belle Ombre from 11th Avenue. By author 2007	(04-05)
Fig 4.8: View of Belle Ombre train station and access bridge. By author 2007	(04-05)
Fig 4.9: View of erf 668 and electrical sub-station from Belle Ombre bus station. By author 2007	(04-05)

Fig 4.10: View from 11th Avenue. By author 2007	(04-05)
Fig 4.11: Corner of Boom Street and 11th Avenue. By author 2007	(04-05)
Fig 4.12: Steenhoven Spruit. By author 2007	(04-06)
Fig 4.13: Marabastad facade. By author 2007	(04-07)
Fig 4.14: Erf 668 with electrical sub-station and Pretoria CBD in background. By author 2007	(04-07)
Fig 4.15: Boom Street. By author 2007	(04-08)
Fig 4.16: Belle Ombre from 11th Avenue. By author 2007	(04-08)
Fig 4.17: North-south section through erf 668. By author 2007	(04-09)
Fig 4.18: East-west section through erf 668. By author 2007	(04-09)

5 PRECEDENTS

	05 - 01
Fig 5.1: Courtyard, Town Hall, Saynatsalo (Weston: 1993)	(05-02)
Fig 5.2: View of the Town Hall, Senajoki, Finland, 1965 (Groak 1992: 217)	(05-02)
Fig 5.3: Ideogram of horizon and sky. By author 2007	(05-02)
Fig 5.4: Ideogram represented in plan and section. By author 2007	(05-02)
Fig 5.5: Entrance to library, Vyborg (Fleig: 1995)	(05-03)
Fig 5.6: Lending room Library, Vyborg (Fleig: 1995)	(05-03)
Fig 5.7: Auditorium, Library, Vyborg (Fleig: 1995)	(05-03)
Fig 5.8: Walkway layout plan (Law-Viljoen 2006: 59)	(05-04)
Fig 5.9: Building name at entrance (Author 2007)	(05-04)
Fig 5.10: Louvered windows in foyer (Author 2007)	(05-04)
Fig 5.11: Court seen from the square with glass tower on the right (Author 2007)	(05-04)
Fig 5.12: Different concrete usages in foyer (Author 2007)	(05-05)
Fig 5.13: Passive cooling system (Law-Viljoen 2006: 140)	(05-05)
Fig 5.14: The african footsteps (Author 2007)	(05-05)
Fig 5.15: Approach to library (Webb 2007: 60)	(05-06)
Fig 5.16: The pods in the atrium (Webb 2007: 63)	(05-06)
Fig 5.17: Site Plan (Webb 2007: 60)	(05-06)
Fig 5.18: Front elevation at night (Webb 2007: 62)	(05-07)
Fig 5.19: Section progression. By author 2007	(05-07)
Fig 5.20: Progression in privacy on plan. By author 2007	(05-07)
Fig 5.21: Typical floor layout (Webb 2007: 62)	(05-07)
Fig 5.22: View inside a pod (Wedd 2007: 65)	(05-07)
Fig 5.23: Mamelodi community centre's library (Author 2007)	(05-08)
Fig 5.24: Layout plan of the Mamelodi community centre's library. By author 2007	(05-08)
Fig 5.25: Level three class in auditorium (Author 2007)	(05-09)
Fig 5.26: Level one and two class in kitchen (Author 2007)	(05-09)

Fig 5.27: Lady at kitchen work bench (Author 2007)	(05-09)
Fig 5.28: Layout plan of kitchen used for ABET class (Author 2007)	(05-09)
Fig 5.29: House Steyn - layout plan. By author 2007	(05-10)
Fig 5.30: House Steyn - the courtyard (Botes 2006: 53)	(05-10)
Fig 5.31: House Steyn - balcony detail (Botes 2006: 53)	(05-10)
Fig 5.32: House Steyn - entrance (Botes 2006: 51)	(05-10)
Fig 5.33: Tolplan - concrete fins (Author 2007)	(05-11)
Fig 5.34: Tolplan - approaching the entrance (Author 2007)	(05-11)
Fig 5.35: Tolplan - north elevation. By author 2007	(05-11)
Fig 5.36: Tolplan - layout site plan. By author 2007	(05-11)
Fig 5.37: Tolplan - front facade from Lynnwood street (Author 2007)	(05-12)
Fig 5.38: Tolplan - eastern facade with courtyard (Author 2007)	(05-12)
Fig 5.39: Tolplan - north facade (Author 2007)	(05-12)
Fig 5.40: Tolplan - west elevation. By author 2007	(05-12)

6 DESIGN DEVELOPMENT

	06 - 01
Fig 6.1: Farnsworth House (Zimmerman 2006: 65)	(06-02)
Fig 6.2: Chartres Cathedral (Fleming 1995: 203)	(06-02)
Fig 6.3: The Glass House, Phillip Johnson (Bangs 2007: 92)	(06-03)
Fig 6.4: Notre-Dame-du-Haut, 1955 (Fleming 1995, p656)	(06-03)
Fig 6.5: Solar Hemicycle House, 1948 Frank Lloyd Wright (Pfeiffer 1991: 154) The opening and the garden	(06-04)
Fig 6.6: Fallingwater, 1939, Frank Lloyd Wright (Pfeiffer 1991: 92)	(06-04)
Fig 6.7: Guild House, 1965, Robert Venturi (Fleming 1995: 682) Hierarchy and proportion	(06-05)
Fig 6.8: Pompidou Centre, 1971, R. Rogers and R. Piano (Stimpson 1985: 140)	(06-05)
Fig 6.9: Concept Plan. By author 2007	(06-06)
Fig 6.10: Existing elevation of buildings across the proposed site. By author 2007	(06-07)
Fig 6.11: Building footprint of Marabastad. By author 2007	(06-07)
Fig 6.12: Archetype section. By author 2007	(06-08)
Fig 6.13: Progression section. By author 2007	(06-09)
Fig 6.14: Hierarchy: experimenting with the height of the walkway. By author 2007	(06-09)
Fig 6.15: Duality between dark and light - plan. By author 2007	(06-09)
Fig 6.16: Hierarchy: experimenting with the importance of the auditorium	(06-09)
Fig 6.17: Notice board section. By author 2007	(06-10)
Fig 6.18: Entrance of Boukunde building at the University of Pretoria. By author 2007	(06-10)
Fig 6.19: Development model 1 sketches. By author 2007	(06-12)
Fig 6.20: Development model 2 sketches. By author 2007	(06-13)
Fig 6.21: Development model 3 sketches. By author 2007	(06-14)

Fig 6.22: Development model 4 sketches. By author 2007	(06-15)
Fig 6.23: Proposed landscape plan. By author 2007	(06-16)
Fig 6.24: Grid influence on proposed front elevation. By author 2007	(06-16)
Fig 6.25: Concept of building skin. By author 2007	(06-17)
Fig 6.26: Building occupation diagram. By author 2007	(06-18)
Fig 6.27: Layout plan. By author 2007	(06-19)
Fig 6.28: Movement plan. By author 2007	(06-20)
Fig 6.29: Approaching the building. By author 2007	(06-22)
Fig 6.30: Layout plan with perspective angles. By author 2007	(06-23)
Fig 6.31: Perspective AA. By author 2007	(06-24)
Fig 6.32: Perspective BB. By author 2007	(06-24)
Fig 6.33: Perspective CC. By author 2007	(06-25)
Fig 6.34: Perspective DD. By author 2007	(06-25)
Fig 6.35: Perspective EE. By author 2007	(06-26)
Fig 6.36: Perspective FF. By author 2007	(06-26)
Fig 6.37: Perspective GG. By author 2007	(06-27)
Fig 6.38: Perspective HH. By author 2007	(06-27)
Fig 6.39: Perspective JJ. By author 2007	(06-28)
Fig 6.40: Perspective KK. By author 2007	(06-28)
Fig 6.41: Perspective of the notice board. By author 2007	(06-29)
7 TECHNICAL INVESTIGATION	07 - 01
Fig 7.1: Section through Lobby. By author 2007	(07-03)
Fig 7.2: Summer wind directions - Pretoria. By author 2007	(07-03)
Fig 7.3: Section through Auditorium. By author 2007	(07-04)
Fig 7.4: Sun control - elevation treatment. By author 2007	(07-05)
Fig 7.5: Heat Transmission-wall. By author 2007	(07-06)
Fig 7.6: Heat Transmission-roof. By author 2007	(07-06)
Fig 7.7: Plan - horizontal louvre proposal. By author 2007	(07-07)
Fig 7.8: Elevation - vertical louvre proposal. By author 2007	(07-07)
Fig 7.9: Louvre development. By author 2007	(07-08)
Fig 7.10: Horizontal louvre - summer. By author 2007	(07-09)
Fig 7.11: Canopy walkway - summer. By author 2007	(07-09)
Fig 7.12: Horizontal louvre - winter . By author 2007	(07-09)
Fig 7.13: Canopy walkway - winter. By author 2007	(07-09)
Fig 7.14: Detail BB. By author 2007	(07-10)
Fig 7.15: Vertical louvre - summer. By author 2007	(07-11)

Fig 7.16: Front facade - winter. By author 2007	(07-11)
Fig 7.17: Front facade - summer. By author 2007	(07-11)
Fig 7.18: Vertical louvre - winter. By author 2007	(07-11)
Fig 7.19: Detail CC. By author 2007	(07-12)
Fig 7.20: Auditorium air flow section. By author 2007	(07-13)
Fig 7.21: Fans (www.luft.co.za)	(07-14)
Fig 7.22: Beacon concept sketches. By author 2007	(07-15)
Fig 7.23: Detail Beacon. By author 2007	(07-16)
Fig 7.24: Detail development 1	(07-17)
Fig 7.25: Detail development 2	(07-18)
All details and drawings by author 2007	

LIST OF TABLES

Table 1.1: Dissertation process layout	(01-05)
Table 2.1: Proportion of illiterate adults according to language, race and sex (www.statssa.co.za)	(02-03)
Table 2.2: Tshwane (Tshwane IDP 2005)	(02-04)
Table 3.1: Traveling towards Pretoria CBD (Nyeleti Consulting 2006)	(03-04)
Table 3.2: Marabastad climate (Aziz Tayob Partnership 1998)	(03-05)
Table 4.1: Land legal status	(04-03)
Table 6.1: The progression of the approach	(06-21)
Table 6.2: Approaching the building	(06-22)
Table 8.1: Accommodation schedule	(08-03)
Table 8.2: Building usage schedule	(08-03)



Dedicated to my Creator,
and my love, Christelle.

My warm thanks to the woman of the Winterveld Project for the
embroidered pictures and to the woman of the ABET class at
Mamelodi East Community centre for writing the heading of
each chapter.