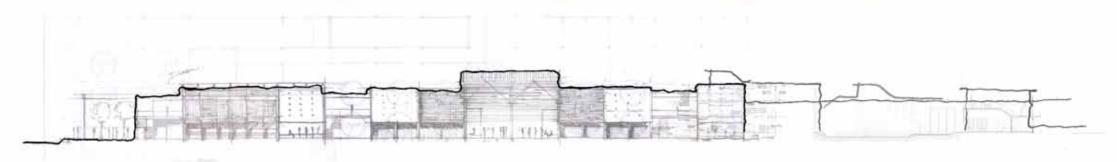
PUBLIC INFORMATION RESOURCE CENTRE

knowledge transference_connectivity_community



K. Steyn



If there is one thing that I'	ve learned during this year	, it is that vou'll never k	know the outcome of	vour decision unless	you follow through
. .	5	, ,		,	J



Public information resource centre
Information transference_connectivity_community

K. SteynMentor: G. White and A. Barker

Study leader: G. White

Submitted in fulfillment of part of the requirements for the degree Magister in Architecture (Professional) in the faculty of Engineering, Built Environment and Information Technology, University of Pretoria, South Africa

November 2010

Acknowledgements

I would like to express my sincere gratitude and appreciation to first of all my parents. Both of whom contributed in their own unique manner; my dad for being there every step of the way, his constant support, un-edited advice and somewhat militaristic method of encouragement. My mother: for her calming words, positive attitude and for just being het light hearted humoristic self. Gary White, my mentor and study leader, for his urban and architectural contribution, belief, and who taught me to just relax and enjoy. Arthur Barker, for always making time to help a student, always being there when we needed him, even if it was just for a pleasant conversation, and for having faith in us, even when we had none in ourselves. Lastly I would like to thank all my architecture friends, whom made every late night a pleasure, every early morning a joy, and for always having time to help one another.

001 Declaration 002



Abstract

The project is situated within the underdeveloped periphery of Mamelodi. It addresses urban issues of connectivity at a physical, spatial and educational level, as a setting for the proposed architectural intervention. The thesis explores a number of architectural issues, mainly the design of a multi-functional information and resource centre to facilitate a series of public, civic and economic services. These issues are formed through programmes which concern information and knowledge provision. Aspects that informed the nature and scope of the intervention include methods of knowledge distribution, the role of the public library as one beyond that of its functional origin and the potential of the building type to serve as a catalyst within a community. Owing to the physical and programmatic context of the building, it needs to offer adaptability, flexibility and eventually change; both in terms of changing information technologies and within an informal trading-dominant society. Pertinent considerations are small scale construction methods that would allow the participation of local contractors, the creation of tectonics and articulation of space with which the community can associate as well as energy saving principles to allow minimal cost.

003 Abstract 004

		4	1
001	Declaration	UNIVERSITY OF PRETORIA UNIVERSITY OF PRETORIA YUNIBESITHI YA PRETORIA	056
002	Acknowledgements	Eerste Fabrieke location: Metropolitan context	058
004	Abstract	Local context	061
004		History	062
05	Table of content	Existing buildings and structures	064
05	Table of content	Analysis	066
			1
007	LIST OF FIGURES		1
		CHAPTER SIX_ urban design framework	068
010	INTRODUCTION	Eerste Fabrieke as Lost space	069
012	Mamelodi in context	Connecting the bigger picture	070
013	Urban scale intervention	Connectivity	072
015	Intervention	The functionalist grid	075
016	Knowledge as catalyst	Determining Hierarchy	076
016	Library as knowledge container	Urban voids	081
018	Building as Symbol in the community	The street as public space	082
020	Providing for informal trade	Integration of the shared street concept	084
022	Research methods and methodology	What is a rural urban experience?	085
V22		Conclusion	086
024	CHAPTER TWO_ Intervention beyond its functional origin	CHAPTER SEVEN_ designing within the framework	088
025	Knowledge transfer	Block plan development_ movement as context	089
026	Building type as a series if schemas	Site Plan development_ an issue of sustainability	092
027	Vessel for transference	Weaving together the community	093
033	Toward a future	Activities arcade_ the street as organiser of space	098
034	Conclusion	Information resource centre_ a series of interconnected solids and voids	110
		Community clinic_ an expansion of community obligation	124
036	CHAPTER THREE_ understanding African space	Live/work housing development _generating required energy	128
037	Movement as space generator and Feedback system		l
038	Invisible urbanism	CHARTER FIGUR. As abusined in continuation	404
038	Movement as tool for orginisation	CHAPTER EIGHT_ technical investigation	134
042	Scale and surroundings	Designing for change	136
044	Conclusion	Shading devices as facade articulation and general connections	138
		Unity through getail	152
046	CHAPTER FOUR_ precedent study	CHAPTER NINE_finale intervention	156
047	Kariakoo Market	From space to form	158
050	Faraday Market and transport Interchange	Conclusion	176
052	Metro Mall Transport Facility and Traders Market		ı
054	Amhed Baba Center	REFERENCES	177

LIST OF FIGURES

Unless referenced otherwise, all drawings, images and photos are generated and taken by the author.

Page 009: Figure 1-3: Photos of current townships along the outskirts of Mamelodi

Page 011: Photos of current townships along the outskirts of Mamelodi

Page 012: Figure 5: Diagrammatical illustration of Mamelodi's current situation

Page 013: Figure 6-11: Ching's diagramatic exploration of linearity

Page 013: Figure 12: 1882 - Linear city by Soria y Mata

Page 014: Figure 13: Diagrammatic plan of Atlanta indicating multi nodal development

Page 014: Figure 14: Relating the multi-nodal development as possible solution for Mamelodi's fragmentation

Page 015: Figure 15-17: Mamelodi in relation to Tswahane Metropolitan area and indicating the internal fragmentation

Page 016: Figure 15-17: Mamelodi in relation to Tswahane Metropolitan area and indicating the internal fragmentation

Page 016: Figure 20: Building as a physical container of knowledge

Page 017: Figure 21-30: Examples of arts, crafts and trade as characteristic to Mamelodi

Page 019: Figure 31-40: Abandoned dormitories as lost and deteriorating space

Page 020: Figure 41-43: Desolation and abandonment of the trader stalls at the bus station vs. the lively self-developed trader's market in Mamelodi

Page 023: Figure 44: Wolfenbüttel Library

Page 023: Figure 45: University of Virginia

Page 023: Figure 46: New York University Library

Page 026: Figure 47-51: Abstract spatial exploration of the theory of cognitive schemas

Page 027: Figure 53-55: Simulating movement as 'social glue' with different scenarios, from open space to confinement

Page 028: Figure 56-61: Knowledge transference and interaction from a social, to a public to a private realm

Page 029: Figure 62: Identify schools

Page 030: Figure 63: Establishing a 2km radius

Page 0 31: Figure 64: Identifying schools within a 2km radius

Page 032: Figure 65: Connecting to the community

Page 037: Figure 66-68: From top to bottom: Indicating the growth of a settlement pattern in Kenya as movement patterns

Page 038: Figure 69-70: Market development along main routes in Kenya

Page 039: Figure 71-72: Water-color painting by Klee (Bacon 1968: 115) relating to current Kenya settlement pattern formation

Page 040: Figure 73-75: Fontana's plan for restructuring Rome, 1585, by Bordino (Bacon 1968: 124-125)

Page 041: Figure 76: Frederick's diagram indicating positive and negative space (2007: point 6, author's image)

Page 041: linear movement as positive space

Page 042: Figure 78: The Museum of Struggle from the air (Digest of SA Architecture, 2005/2006: 12)

Page 042: Figure 79: Museum of Struggle as part of the Red Location precinct (Noero 2009: 99)

Page 042: Figure 80: Mosque in Timbuktu

Page 045: Figure 81: Kariakoo market

Page 045: Figure 81: Faraday Market

Page 045: Figure 82: Metro Mall

Page 045: Line sketch of Amhed Baba Center in context

Page 047: Figure: 83-85: Evolution of Kariakoo market

Page 048: Figure: 86: Kariakoo in context

Page 048: Figure 87-89: Different proposals for the market

Page 049: Figure 90: Metro Mall Precinct plan

Page 049: Photo indicating the formation of informal trade surrounding the Faraday Market

Page 050: Figure 92: Covered traders market

Page 050: Figure 93: Typical traders corridor with stalls at each side

Page 050: Figure 94: Example of small-scale, lockable trader stalls as storage

Page 051: Figure 95: Urban development framework by Urban Solutions

Page 051: Figure 96-99: Metro Mall in an urban environment and the way it reacts to context by edge activation

Page 052: Figure 100-103: Internal and external traders markets and formal retail

Page 053: Figure 105: Line sketch of how the building fits into its context

Page 053: Figure 104: Programs located around a central courtyard

Page 054: Figure 107: Southern view of the centre (Lee 2010: 52) Page 054: Figure 108: Permeability accentuating its public relation (Lee 2010: 53)

Page 054: Figure 109: Internal spaces derived from the surrounding environment (Lee 2010: 54)

Page 055: Figure 110: line sketch of Mamelodi in context to metropolitan area

Page: 057: Figure 111: Context and identifying possible nodes for connection

Page 058: Mamelodi in metropolitan context

Page 059: Figure 113: Mamelodi in metropolitan context

Page 061: Figure 114: Main vehicular movement

Page 061: Figure 115: Main padestrian movement

Page 062: Figure 116: Panoramic view of Eerste Eabreike station

Page 063: Figure 117-125: Buildings of importance as per figure 120

Page 064: Figure 126: Buildings and structures of significance

Page 065: Figure 127: Panoramic view from Eerste Fabrieke station

Page 065: Figure 128: Panoramic view of southern farmlands

Page 065: Figure 129: Panoramic view of southern farmlands

Page 065: Figure 130: Panoramic view of Nellmapius

Page 067: Figure 131: Urban design concept drawing

Page 069: Figure 132-134: Indicating the underused and deteriorating lost space surrounding the Eerste Fabreieke precinct

Page 070: Figure 135: Identify nodes for development and indicating the residual space in between

Page 071: Figure 136: Possible solution for connectivity

Page 071: Figure 137: Established economic opportunities within 800m walkable radius from one another

Page 072: Figure 138: Establishing structure along 'economic spine'.

Page 073: Figure 139-141: Traditional and modern urban form and Mamelodi's urban form

Page 074: Figure 142: An incorporation of built form and a spatial structure of public spaces

Page 074: Figure 143: Envisaged expansion of progression and development

Page 075: Figure 144: Le Corbusier's plan of Chandigarh, India. The functionalists tended to use the grid as a means of segregat-

ing activities into different zones

Page 076: Figure 145-147: Ching's diagram for spatial hierarchy

Page 077: Figure 148: Master Plan; Applying the concept of hierarchy through shape in an attempt to emphasise Eerste Fabrieke

as an important configuration

Page 077: Figure 149: Spatial Stracture; The primary network of streets and squares: A unifying structure that contains the active public life of the city

Page 078: Figure 150: The primary network connectivity

Page 079: Figure 151: Greenery; Differentiating between hard and soft spaces, and public and productive green areas

Page 079: Figure 152: Land use; Allocating programme and function so as to optimise the efficiency in a general network

Page 080: Figure 153: Self-development as infill of residual space

Page 081: Figure 154-156: Theory of urban voids

Page 082: Figure 153: Self-development as infill of residual space

Page 082: Figure 158-163: Street as an integration of activities and public space

Page 082: Figure 164: Diagrammatic representation of the street as a public space

Page 084: Figure 165: Plan of the shared street concept

Page 084: Figure 166: Bird's eye view of the shared street as a connection between proposed taxi drop-off and Eerste Fabrieke

Page 084: Figure 167: Typical section through proposed street connecting Tsamya Road to Werste Fabrieke Station

Page 084: Figure 168: Providing a link between new and existing transport nodes

Page o85: Figure 169-171: Sert, Soltan and von Moltke. New communities Project. The goal of this project was to create a compact



environment based on intensive land use without the sprawl of the suburb or the inefficient planning of the core city

Page 086: Figure 172: Vision for the future: providing the necessities for self development and adaption

Page 087: Figure 173: design concept

Page 089: Figure 174-179: Block plan development

Page 091: Figure 180: Proposed block plan as a mixed-use development

Page 092: Figure 181: Site investigation

Page 093: Figure 182-185: Serving as catalyst while weaving together community and function

Page 094: Figure 186-189: Site plan development

Page 095: Figure 190: Precinct mass refinement Page 096: Figure 191: Creating a vision for the future

Page 097: Figure 192: Initial plan of activities arcade

Page 097: Initial elevation of activities arcade

Page 097: Extending an un-programmed plan

Page 098: Figure 195: Isfahan, Iran. The street forms a strong spine for the co-existence of activities

Page 099: Figure 196: Investigation of plan and section

Page 101: Figure 197-203: Spatial exploration of prototype one

Page 102: Figure 204-211: Spatial exploration of prototype two

Page 103: Figure 212-219: Spatial exploration of prototype three

Page 104: Figure 220: Intervention as permeable and extension of the street

Page 104: Figure 221: Activation of street edge

Page 104: Figure 222: Market space

Page 104: Market space

Page 105: Figure 224-226: Threshold investigation and relation to street edge

Page 106: Figure 227: Functions

Page 106: Extension toward the street

Page 106: Figure 229: Softening the street edge Page 107: Figure 230-232: Facade investigation

Page 108: Figure 233: View from southern end

Page 108: Figure 234: Open space and Post-office

Page 108: Figure 235: Arcade from minibus drop-off

Page 109: Figure 236-241: Building as representation within the community

Page 110: Figure 242-245: From top to bottom: 1928 - Villa Savoye- a positive architectural statement, Proposed Information and Resource Centre

Page 111: Figure 246-255: Design process of site, form and scale

Page 112: Figure 256: Centre allows for multiple entries into courtyard

Page 113: Figure 257: Ground floor expansion into public realm

Page 114: Figure 258-159: Courtyard space

Pag1 114: Figure 260: Connection to public realm

Page 115: Figure 261: First floor investigation

Page 116: Figure 162-165: Section investigation

Page 117: Figure 266: Second floor investigation

Page 118: Figure 167-169: Section investigation

Page 119: Figure 270-287: Prototype one and two: Spatial exploration and fragmentation of the greater civic centre

Page 121: Figure 288-291: Facade investigation

Page 122: Figure 300-302: Internal space and natural light investigation

Page 123: Figure 304: Section through clinic in relation to Information centre, courtyard and pedestrian corridor

Page 124: Figure 305: Clinic in relation to Eerste Fabrieke Station

Page 125: Figure 306-307: Ground and first floor investigation

Page 126: Figure 308: Section through clinic indicating treatment rooms, waiting area and first floor office space

Page 126: Figure 309: Perspective of pedestrian walkway south of the clinic

Page 127: Figure 310: Planning the modular unit

Page 128: Figure 311-314: Primary elements influencing the form of the housing development

Page 129: Figure 315: Vision as seen from the activities arcade

Page 130: Figure 316-319: Indicating how modular units fit together

Page 131: Figure 320: North- eastern perspective

Page 131: Figure 321: Longitudinal section

Page 131: Figure 322: Units facing access road

Page 133: Figure 332: Basic structural frame

Page 135: Figure 326-328: Museum and Art gallery, City Museum, National History Museum by Le Corbusier, Chandigarh (author's

Page 135: Figure 329: Metro Mall by Urban Solutions, Johannesburg (author's photo)

Page 135: Figure 330-335: College of Art and College of Architecture by Le Corbusier, Chandigarh (author's photo)

Page 136: Figure 336-337: Grouping of programmes and services

Page 136: Figure 338-340: Primary concrete structure and secondary infill

Page 137: Figure 341: Section indicating incorporation of screens Page 137: Figure: 342-343: Concrete and fiber cement shading devices as infill

Page 138: Figure 344: Articulation of interior spaces through in-situ cast light shelves

Page 139: Figure 345: Incorporation of balustrade and fixed louver system for articulation of open walkways

Page 140: Figure 346: Fiber cement louver detail

Page 140: Figure 347: Plan of adjustable metal louvers

Page 140: Figure 348: Variety of lightweight metal shading devices fixed to concrete frame

Page 141: Figure 349: Lightweight metal shading devices as method of controlling internal climate

Page 141: Figure 350: Combination of fiber cement and concrete frame in section Page 141: Figure 351: Corrugated iron louver detail

Page 141: Figure 352: Adjustable façade to control light and allow for natural ventilation

Page 142: Figure 353: Providing a deeper membrane for sun control allows for flexibility and control of internal spaces

Page 143: Figure 354: Defining space through basic structure

Page 144: Figure 355: Articulation of façade and interior space through screens as sun-control

-146: Figure 352: Section showing relationship between Information Centre, courtyard and Community Clinic

Page 147: Figure 353: Spatial section through exhibition space and open studio

Page 148: Figure 354: Section through exhibition space and semi-basement Page 149: Figure 355: Semi-basement detail

Page 150: Figure 356: Balcony detail

Page 151: Figure 357: General metal lighting or suspended ceiling

Page 151: Figure 358: General metal baluster connection detail Page 152: Figure 359: Protection of face brick edge, Metro Mall

Page 152: Figure 360: Framed and covered walkway at Faraday Market Transport Interchange Page 153: Figure 361-364: Pergola structure and related details

Page 154: Figure 365-366: Pergola connection details

Page 155: Figure 367: Site development plan

Page 157: Figure 368: Southern view of Information Resource Centre and public courtyard

Page 160: Figure 369: Southern bird's-eye view of the entire complex, street and live/work housing development along the street

Page 161: Figure 370: South-Western view of Information Resource Centre and courtyard

Page 164: Figure 372: North- Eastern perspective of the Information Resource Centre

Page 162: Figure 371: South-Eastern view of Information Resource Centre and public courtyard

-166: Figure 373-386: Spatial exploration of the entire intervention from different views and on a variety of scales

Page 175: Southern overview of entire intervention

List of figures

List of figures