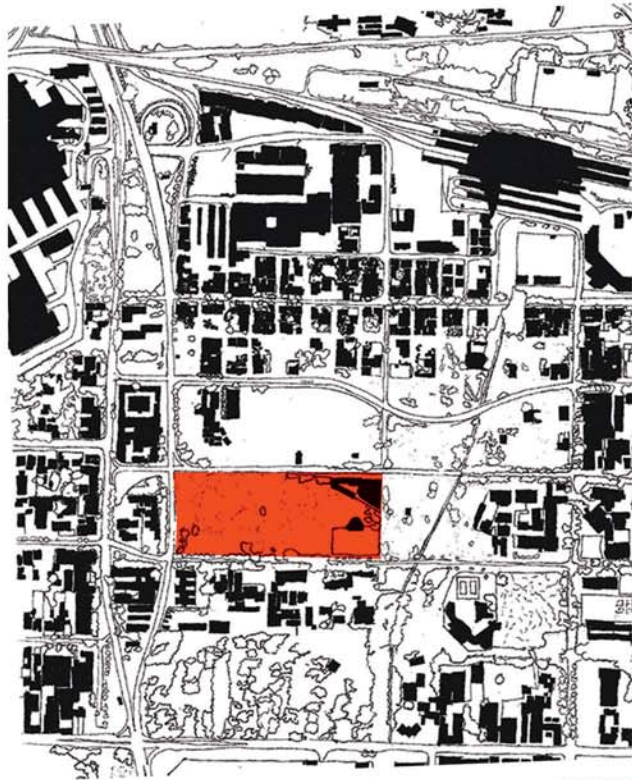




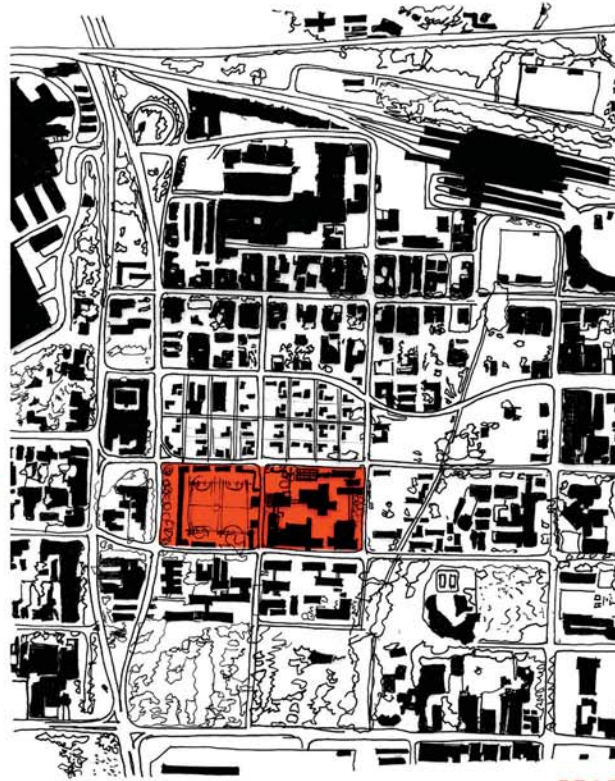
UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Chapter 9

CONCLUSION



2002



2012

01 DEVELOPMENTAL GROWTH

PLANS FROM AZIZ TAYOB ARCHITECTS : 2002, EDITED BY THE AUTHOR : 2007

The aim of this dissertation was to provide Marabastad with a *Centre for Illustrated Sports* that could accommodate alternating levels of use and activity. Issues surrounding **security** was addressed by the application of fencing, climbing walls, passive surveillance and landscaped terraces.

In order to promote a **positive living environment**, the structure allows for cross ventilation, temperature control and the use of natural lighting. Furthermore, a **permeable structure** is achieved by the use of translucent sheeting, glass flooring, pool windows and large glazing panels. The **differential use of facilities** is promoted by the implementation of bleacher seating, shifting screen walls and curtain panels.

The centre allows the youth within Pretoria CBD access to sports training facilities and equipment in order to promote physical activity. A suspended **meditation room**, enhances body-awareness. A running track, surrounding the centre, connects with the bigger heritage route, linking the Present with the Past. **Intelligent screens** at busstop structures throughout the city will advertise activities hosted within the complex.

The centre becomes a **performance environment** capable of adjusting to a specific user's needs, which in turn should result in a longer lifespan. The introduction of **kinetic architecture**, enables the structure to interact with its potential users. This built work now awaits functional intervention by different sports.

Chapter 10

REFERENCING



CHAPTER 1:

01. *Hacker* Frederich Haupt, *Wallpaper Magazine*. Edition 1, 2007, p23.
02. *Calisthenic Exercise*. MAREY, E. J. 1914 *The Human Body in Action : How Science Helps the Athlete to help himself*. Scientific American, France.

CHAPTER 2:

01. *Gauteng Province*. & 02. *Pretoria CBD*. Geological Survey. 1970.
- 03.-04. *Department of Geography*. UP. 2007.
05. *Digital Mile*. Zaragoza, MIT Massachussets, USA. 2006.
06. *Abdominal muscle exercise*. MAREY, E. J. 1914 *The Human Body in Action : How Science Helps the Athlete to help himself*. Scientific American, France.
07. *Vehicular movement in Pretoria CBD*. & 08. *Existing Barriers*. Marabastad Group Framework. UP. 2007.
09. *Proximity of existing sports grounds*. Aerial photo of the Department of Geography. UP. Edited by the author. 2007.
10. *Existing Schools*. Aerial photo of the Department of Geography, UP, edited by the author. 2007.
11. *Marabastad from Daspoortrand*. Aziz Tayob Architects. 2002. *Integrated Urban Design Framework for Marabastad*. Tshwane Metropolitan Council. Pretoria.
12. *Pretoria Inner City Grid 1950*. Aziz Tayob Architects. 2002. *Integrated Urban Design Framework for Marabastad*. Tshwane Metropolitan Council. Pretoria.
13. *Asiatic Bazaar 1954*. Aziz Tayob Architects. 2002. *Integrated Urban Design Framework for Marabastad*. Tshwane Metropolitan Council. Pretoria.
14. *Marabastad Aerial Photographs, 1934-1998*. Aziz Tayob Architects. 2002. *Integrated Urban Design Framework for Marabastad*. Tshwane Metropolitan Council. Pretoria.
15. *Existing Urban Fabric*. Aziz Tayob Architects. 2002. *Integrated Urban Design Framework for Marabastad*. Tshwane Metropolitan Council. Pretoria.
- 16.&17. *1967 Freeway proposal for Pretoria*. Bruinette, K. E. 1967. *1967 Freeway Proposal for Pretoria*. Interchange over the Asiatic Bazaar. Pretoria
18. *Proposed Heritage Route*. Aerial photo of the Department of Geography. UP. Edited by the author. 2007.
19. *Moments photographed in Marabastad*. Photos taken by the author. 2007.
20. *Marabastad Infrastructure*. Marabastad Group Framework. UP. 2007
21. *Marabastad social behaviour*. Statistics South Africa. 2003.
- 22.-24. *Proposed Urban Fabric*. Marabastad Group Framework. UP. 2007
25. *SG-Diagram*. Tshwane Metropolitan Council. Pretoria. 2007.
- 26.-27. Photos taken by the author. 2007.
28. *Major routing*. Aerial photo of the Department of Geography, UP, edited by the author. 2007.
29. *Pedestrian Behaviour*. Aerial photo of the Department of Geography, UP, edited by the author. 2007.
- 30.-31. *Pretoria Climatic Analysis*. Holm, D. 1996. *Manuel for Energy Conscious Design*. Department of Minerals and Energy. Directorate Energy for Development.
32. Photos taken by the author. 2007.

- ng. MAREY, E. J. 1914 *The Human Body in Action : How Science Helps the Athlete to help himself*. Scientific American, France.
34. Photos taken by the author. 2007.

CHAPTER 3:

01. *Ducamp descending a flight of stairs*. Life Magazine. April 1952. p.103.
02. *Athlete jumping hurdles*. MAREY, E. J. 1914 *The Human Body in Action : How Science Helps the Athlete to help himself*. Scientific American, France.
03. *Characteristics of South African Cities*. CSIR Bulding and Construction Technology. 2001. *A Manual for Crime Prevention through planning and design*. CSIR. Pretoria.
04. *A sport centre functioning in Marabastad*. Aerial photo of the Department of Geography, UP, edited by the author. 2007.
05. Photos taken by the author. 2007.
06. *Seven stages of a giant swing*. MAREY, E. J. 1914 *The Human Body in Action : How Science Helps the Athlete to help himself*. Scientific American, France.

CHAPTER 4:

01. *Retiro Park Gymnasium*. Pieter Rolies. 2006. www.greatbuildingsonline.com visited on 12 August 2007.
02. Sketch by author. 2007.
03. *Structure as platform for nature*. Pieter Rolies. 2006. www.greatbuildingsonline.com visited on 12 August 2007.
04. *Inaki Abbalos and Juan Herreros*. McQuirk, J. 2006. *Icon-Magazine*. Issue 027/ 2006. p.35.
05. *Colmenarejo Municipal Hall*. Bell, V. B. and Rand, P. 2006. *Materials for Architectural Design*. Laurence King Publishing. London. UK.
06. Sketches by author. 2007.
07. *Adaptable Structure*. Bell, V. B. and Rand, P. 2006. *Materials for Architectural Design*. Laurence King Publishing. London. UK.
- 08.-09. *Saynatsalo Town Hall by Alvar Aalto*. <http://www.greatbuildingsonline.com> visited on 12 August 2007.
10. *Alvar Aalto(c. 1898-1976)*. Riding, A. New York Times. April 1, 2007. *Alvar Aalto : Through the eyes of Shigeru Ban*. New York. USA.
11. *Pfaffenholz Sports Complex*. <http://www.spiluttini.com>. Posted 1995, visited on 8 August 2007.
12. Sketch by author. 2007.
13. *Detail design and connections*. <http://www.spiluttini.com>. Posted 1995, visited on 8 August 2007.
14. *Jacques Herzog & Pierre De Meuron*. <http://www.spiluttini.com>. Posted 1995, visited on 8 August 2007.
- 15.-19. Jo Noero Projects. <http://www.noerowolff.com/projects/education> visited on 7 August 2007

CHAPTER 5:

01. *Santiago Calatrava demonstrates Kinetics*. Kamin, B. 2002. **Santiago Calatrava marries Sculpture and Structure and molds a new identity for the Milwaukee Art Museum**. *Architectural Record* . Issue 190/3. p.92-105.
02. *Swinging Gymnast*. MAREY, E. J. 1914 **The Human Body in Action : How Science Helps the Athlete to help himself**. *Scientific American*, France.
03. *Suitcase House*. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.interactivearchitecture.com> visited on 30 March 2007
04. *Dune 4.0*. <http://www.studio Roosegarde.com> visited on 30 March 2007
05. *Podium Light Wall*. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.interactivearchitecture.com> visited on 30 March 2007
06. *Digital Mile*. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.interactivearchitecture.com> visited on 30 March 2007
07. *Mobile Concrete*. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.kdg.mit.edu> visited on 17 March 2007.
08. *Leaping*. MAREY, E. J. 1914 **The Human Body in Action : How Science Helps the Athlete to help himself**. *Scientific American*, France.

CHAPTER 6:

- 01.-07. Sketches and model by the author. 2007.

CHAPTER 7:

01. Siteplan by author. 2007.
02. *Leaping*. MAREY, E. J. 1914 **The Human Body in Action : How Science Helps the Athlete to help himself**. *Scientific American*, France.
03. Collage by the author. 2007.
- 04.-06. Images by the author.
07. *Tudor Road Trail Crossing*. International Iron and Steel Institute. 1997. **Innovations in Steel: Bridges around the world**. Brussels. Belgium. p.27.
08. *ClearVu 2 Fencing*. Cochrane Products. 2006. **The invisible Wall: Lifestyle Security Fencing System**. ClearVu 2.
09. *Translucent sheeting*. Cambridge University. Cambridge. USA. <http://www.cambridge.com/visuals> visited on 12 June 2007.
10. *Kinetic street lighting*. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.interactivearchitecture.com> visited on 30 March 2007
11. *Regupol Type 7619*. Fintrex. 1995. **Regupol Synthetic Surfacing**. Johannesburg.
12. *Interactive courtyards*. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.interactivearchitecture.com> visited on 30 March 2007
- 13.-15. Sketches by the author. 2007.
16. *Tram Stations*. Bell, V. B. and Rand, P. 2006. **Materials for Architectural Design**. Laurence King Publishing. London. UK.
17. *Kinetic touch screens*. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.interactivearchitecture.com> visited on 30 March 2007

- 18.-21. Sketches by the author. 2007.
22. *Sports Therapy Centre. Sports Training Village*. University of Bath. Bath. Germany. <http://www.teambath.com> visited on 12 September 2007.
23. *Shifting walls*. Cambridge University. Cambridge. USA. <http://www.cambridge.com/visuals> visited on 12 June 2007.
24. *Shifting walls framed by light*. Massachusetts Institute of Technology. Massachusetts. USA. *Responsive Space*. <http://www.interactivearchitecture.com> visited on 30 March 2007.
- 25-28. Sketches and diagrams by the author. 2007.
29. *Indegenous Systems*. Jo Noero. <http://www.noerowolff.com/projects/education> visited on 7 August 2007.
30. *Danpalon Multicell*. Revolutionary Danpalon Systems. Brochure: 2007. USA.
31. *Canteen 01*. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.interactivearchitecture.com> visited on 30 March 2007.
- 32-35. Sketches and diagrams by the author. 2007.
36. *Movement Awareness glass Flooring*. SB Magazine. Issue 1/2005. Front Page.
37. *House in Imazaro*. Bell, V. B. and Rand, P. 2006. **Materials for Architectural Design**. Laurence King Publishing. London. UK.
38. *Sliding Shutters from Luxalon*. Luxalon Sun Control Systems. Brochure: 2005. Pretoria.
- 39-42. Sketches and diagrams by the author. 2007.
43. *RecDeck PVC Flooring*. Poolequip. USA. <http://www.poolequip.com> visited on 5 September 2007.
44. *Sauna. Sports Training Village*. University of Bath. Bath. Germany. <http://www.teambath.com> visited on 12 September 2007.
45. *Stegmeier Deck Drain*. Poolequip. USA. <http://www.poolequip.com> visited on 5 September 2007.
46. *House Moncrieff*. Architecture South Africa. Issue 8/2007. p.27. The South African Institute of Architects.
- 47-49. Sketches and diagrams by the author. 2007.
50. *Controllable solar shading - Solarfin from Solar Shading Industries*. **Architectural Solutions**. Shadometal Brochure. 2007. p.15
- 51-52. *Polymer Engineering Centre*. Bell, V. B. and Rand, P. 2006. **Materials for Architectural Design**. Laurence King Publishing. London. UK.
53. *Pool at Founders Complex. Founders Complex*. University of Bath. Bath. Germany. <http://www.teambath.com> visited on 12 September 2007.
- 54-57. Sketches and diagrams by the author. 2007.
58. *Grantham Indoor Grass Hall*. Grantham University. <http://grantham.com> visited on 12 August 2007.
59. *Ambassador's Residence*. *Architectural Review*. Issue 5/2007. p.38. **Swiss Protocol**.
- 60-65. Sketches by the author. 2007.
66. *Miniwave corrugated stainless steel*. International Iron and Steel Institute. 1997. **Innovations in Steel: Roofs and Facades around the World**. Brussels. Belgium.



67. *Brightly Coloured glazed bricks*. Brick Bulletin. Summer 2006. **Mood o moment**. Brick Development Association. UK. p.07.
- 68-72. Sketches and 3D impression by the author. 2007.
73. *Climbing walls*. **Sports Training Village**. University of Bath. Bath. Germany. <http://www.teambath.com> visited on 12 September 2007.
- 74-76. *Ball connection and stainless netting mesh*. Seattle Fabrics. Seattle. USA. <http://www.seattlefabrics.com> visited on 18 September 2007.
- 77-79. Sketches and 3D impression by the author. 2007.
80. *Martial Arts Centre*. **Sports Training Village**. University of Bath. Bath. Germany. <http://www.teambath.com> visited on 12 September 2007.
81. *Indoor Sprint tracj with triple jump pit at end*. **Founders Complex**. University of Bath. Bath. Germany. <http://www.teambath.com> visited on 12 September 2007.
- 82-85. Sketches by the author. 2007.
86. *Adaptive Sports Halls*. **Founders Complex**. University of Bath. Bath. Germany. <http://www.teambath.com> visited on 12 September 2007.
87. *Translucent steel divider curtains*. **Tim Henman Sports Club**. University of Bath. Bath. Germany. <http://www.teambath.com> visited on 12 September 2007.

CHAPTER 8:

All plans, sections and details done by author. 2007.

CHAPTER 9:

01. *Developmental Growth*. Plans from Aziz Tayob Architects. 2002. **Integrated Urban Design Framework for Marabastad**. Tshwane Metropolitan Council. Pretoria. Edited by author. 2007.



DESIGN THEORY:

1. Blundell Jones, P. & Miralles, E. 1995. *Architecture and sport*. Stuttgart.
2. Miralles, E. 2000. *Architecture of time*. MIT Press. Cambridge. USA
3. Tshumi, B. 2001. *Glass Ramp/Glass Wall*. Architectural Association, London, England.

HISTORY AND CONTEXT:

1. Aziz Tayob Architects. 2002. *Integrated Urban Design Framework for Marabastad*. Tshwane Metropolitan Municipality. Pretoria.
2. Bruinette, K. E. 1967. *1967 Freeway Proposal for Pretoria. Interchange over the Asiatic Bazaar*. Pretoria
3. Cameron, T. & Spies, S. B. 1986. *Nuwe geskiedenis van Suid-Afrika*. Human&Rossouw. Kaapstad
4. CSIR Building and Construction Technology. 2001. *A Manual for crime prevention through planning and design*. CSIR. Pretoria.
5. Geological Survey. 1970. *Geological Map of South Africa*. Government Printer. Pretoria.
6. Holm, D. 1996. *Manual for Energy Conscious Design*. Departement of Minerals and Energy. Directorate Energy for Development.
7. Joubert, A. 2007. *Interview with municipal official at Munitoria*. Tshwane Metropolitan Council. Departement of Land Surveying and Rights. Pretoria.
8. Lemon, A. 1991. *South Africa's segregated Cities*. David Phillip Publishers. Cape Town.
9. Memeza, M. & Rauch, J. June 2000. *City Governments' Contribution to Urban Safety*. (Paper)
10. Pretoria Inner City Partnership. 1999. Brochure: *Pretoria Inner City*. PICP. Pretoria
11. Spies, J. 2006. *Housing: A green proprietor in Marabastad*. University of Pretoria. Kitskopie Uitgewers. Pretoria.
12. Trancik, Roger. 1986. *Finding Lost Space*. John Wiley & Sons. New York.
13. <http://map.web.mapquest.com> visited on 22 March 2007.

SPORT EDUCATION:

1. Marey, E. J. 1914. *The human body in action: How science helps the athlete to help himself*. Scientific American. France.
2. <http://www.foundation.sdsu.edu/projects/spark> visited on 30 March 2007
3. <http://www.nikego.com> visited on 23 March 2007
4. <http://www.niketown5k.com> visited on 23 March 2007
5. http://www.ussoccerfoundation.org/site/Urban_Soccer_Programs_Collaborate visited on 23 March 2007

1. Abalos, I. & Herreros, J. 2003. *Expanding the limits of the World*. DOMUS. Issue 6/2005. p.50.
2. Adler, D. 1999. *Metric Handbook - Planning and Design Data*. Architectural Press. Oxford. UK.
3. Harcus, K. 2005. *Facilities for the Development of Sport in Conjunction with the 2010 Soccer World Cup*. University of Pretoria. Pretoria Bookbinders. Pretoria.
4. John, G. & Campbell, K. 1993. *Handbook of sports and recreational building Design. Volume 1: Outdoor Sports*. Architectural Press. London
5. John, G. & Campbell, K. 1993. *Handbook of sports and recreational building Design. Volume 2: Indoor Sports*. Architectural Press. London
6. Mcguirk, J. 2006. *Icon Magazine*. Issue 027/2006. Abalos & Herreros.
7. Meisei. 1995. *Athletic and recreational facilities: new concepts in architecture and design*. Tokyo
8. Noero-Wolff Architects. <http://www.noerowolff.com/projects/educational/educare> visited on 7 August 2007.
8. Riding, A. April 1, 2007. *New York Times*. *Alvar Aalto: Through the eyes of Sigeru Ban*. New York. USA
10. <http://www.building.arct.ac.uk/westc/sports/sport.html> visited on 2 April 2007
11. <http://www.sport.reading.ac.uk> visited on 2 April 2007

KINETIC ARCHITECTURE:

1. Bell, V. B. & Rand, P. 2006. *Materials for architectural Design*. Laurence King Publishing. London. UK.
2. Calatrava, S. 1995. *Secret Sketchbook*. The Monacelli Press. New York.
3. Cutaro, J. *The Boston Globe*. Tuesday, July 23, 2007. *Little treadmills everywhere: Floors that harvest the energy in every step*. The international Herald Tribune.
4. Fox, M.A. 2002. *Beyond Kinetic*. Massachusetts Institute of Technology. Cambridge. USA
5. Kamin, B. 2002. *Santiago Calatrava marries sculpture and structure and molds a new identity for the Milwaukee Art Museum, his first building in the US*. *Architectural Record* 190/3, p.92-105.
6. Massachusetts Institute of Technology. Massachusetts. USA. <http://www.interactivearchitecture.com> visited on 30 March 2007.
7. Phillip, D. & Frei, O. 1976. *Form and structure*. Westview Press. Colorado.
8. <http://www.kdg.mit.edu/Pdf/beyond.pdf> visited on 17 March 2007

REFERENCES TO CONTINUE ON FOLLOWING PAGE...



TECHNICAL INVESTIGATION:

1. Brick Bulletin. Summer 2006. *Mood of the Moment*. Brick Development Association. UK. p.07.
2. Cochrane Products. Brochure 2006. *The invisible Wall: Lifestyle Security Fencing Systems*. ClearVu 2.
3. Cook, P. Architectural Review. Issue 5/2007. *View-Technology and the Appropriate*. EMAP Communications.
4. Fintrex. Brochure 1995. *Regupol Synthetic Surfacing*. Johannesburg. SA.
5. International Iron and Steel Institute. 1997. *Innovations in Steel: Bridges around the World*. Brussels. Belgium. p.27.
6. International Iron and Steel Institute. 1997. *Innovations in Steel: Residential Construction around the World*. Brussels. Belgium. p.17.
7. International Iron and Steel Institute. 1997. *Innovations in Steel: Roofs and facades around the World*. Brussels. Belgium. p.12.
8. Moore, F. 2001. *Indirect Sunlighting and Skylighting: Strategies used by Alvar Aalto*. Department of Architecture. Miami University. Ohio. USA.