

Submitted in part fulfillment of the requirements for the degree Magister in Architecture (Professional) in the Faculty of Engineering, the Built Environment and Information Technology.

University of Pretoria

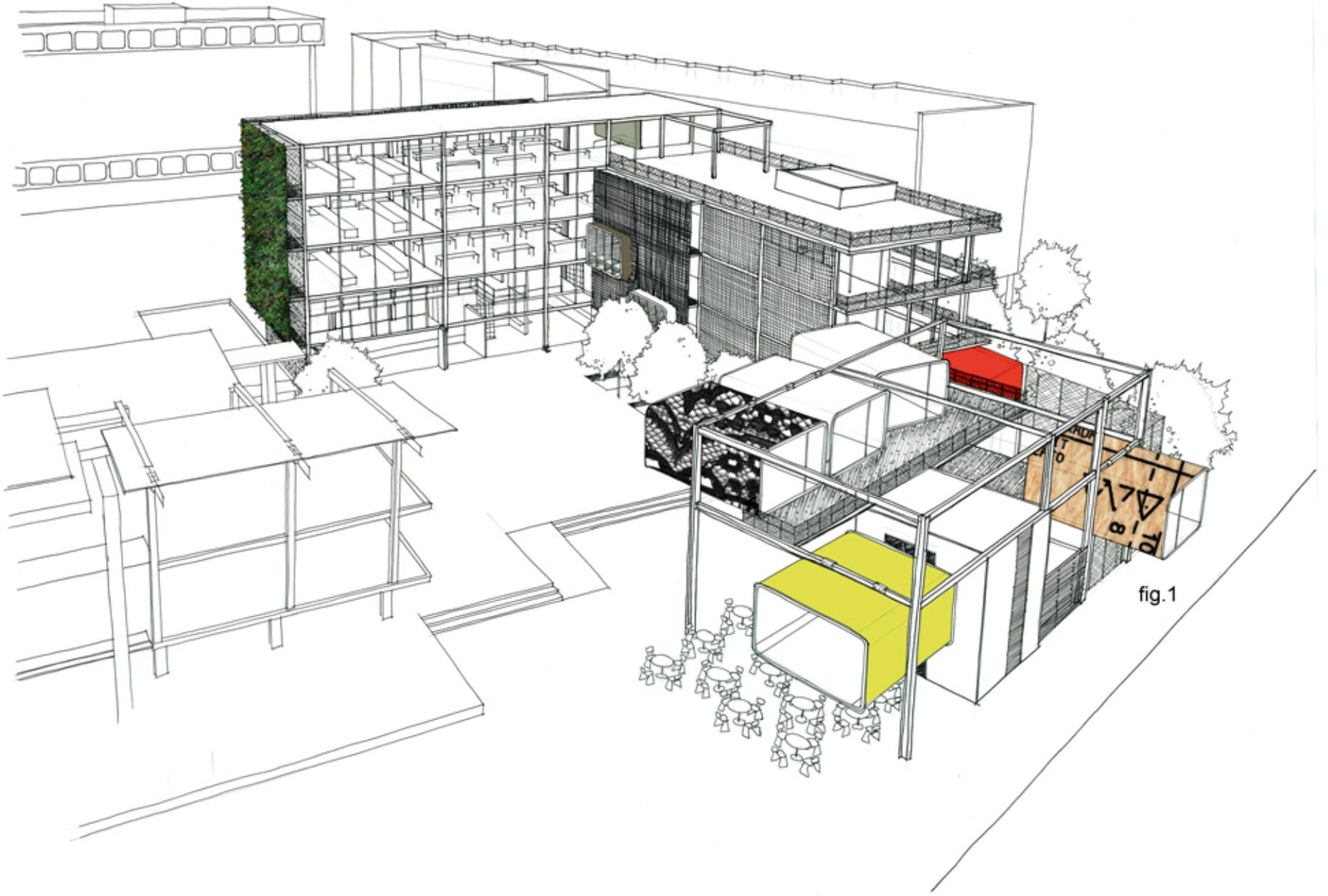
Department of Architecture

November 2008

Korine Stegmann

Mentors : Gary White

Marga Viljoen



**KNOOP**

## PROJECT



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA

## KNOOP

UP Fashion and Craft School Design Initiative  
UP Performing Arts  
UP Visual Arts Departments.

## THESIS/CAUSE

To initiate an interdisciplinary cross-pollination to assert the University of Pretoria's creative arts.

## CLIENT

UP in collaboration with TEKO – a Scandinavian Fashion and Textile School of Design that is co-operating with South African tertiary institutions through the Department of Trade and Industries.

## USERS

UP students and young designers from the retail design industries.

## MODUS

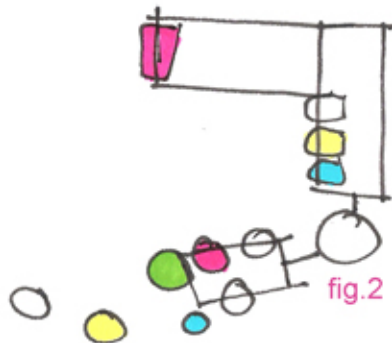
By creating a resource rich South African environment where design consultants will aid artisans to achieve viable careers in design.

## LOCATION

Hatfield, Pretoria

## MAIN INVESTOR

Property Investor: Intersite





**“Everything around us either relates to the body or the environment. I think of modular systems where clothes are like small parts of the interior, the interiors are part of architecture, which is then part of the urban environment. I think of fluid space where they are all a part of each other, just in different scales and proportions.”** (Hussein Chalayan, British fashion designer)



## TABLE OF CONTENTS

<b>Models</b>	List of figures	ii	<b>10 Cut</b>			
	Introduction	4	Design development	10.1	Concept 1	60
	Project Partners	5		10.2	Concept 2	61
	Case Studies	6		10.3	Concept 3	63
				10.4	Concept 4	65
<b>1 Out of fit</b>	Real world problem	8		10.5	Skin development	69
	1.1 Context	9		10.6	<i>Precedent 6: Bauhaus, Dessau</i>	70
	1.2 Study area	10		10.7	<i>Precedent 7: Dré Wapenaar, Netherlands</i>	71
<b>2 Muse</b>	Inspiration behind KNOOP			10.8	KNOOP visual language	72
	2.1 UP history	12		10.9	KNOOP functions	74
	2.2 UP existing fashion labs	13		10.10	KNOOP users	75
<b>3 Fabric Decay</b>	Context analysis		<b>11 Make</b>			
	3.1 Precedent information	15	Spatial exploration	11.1	Cross-pollination diagram	80
	3.2 UP Vision	16		11.2	Public vs. private	82
	3.3 Gautrain	18		11.3	Circulation	83
	3.4 S.T.A.R.T.	20	<b>12 Trim</b>			
<b>4 Layering</b>	Site analysis		Technical investigation			
	4.1 Metro scale	22		12.1	Brief specifications	86
	4.2 Proposed land use	23		12.2	Material choice	87
	4.3 Precinct identification	24		12.3	Frame	89
	4.4 Landmarks	25		12.4	<i>Precedent 8: British Pavilion Expo '92, Spain</i>	91
	4.5 Hatfield linkages	26		12.5	Skin	92
	4.6 Energy flow	27		12.6	<i>Precedent 9: Biovac Centre, Cape Town, SA</i>	94
	4.7 Urban development	31		12.7	<i>Precedent 10: Wall House, Chile</i>	95
	4.8 <i>Precedent 1: JDA Fashion District, Johannesburg, SA</i>	33		12.8	<i>Precedent 11: Eko Park, Warsaw, Poland</i>	96
	4.9 <i>Precedent 2: Schouwburgplein, Rotterdam, Netherlands</i>	34		12.9	Roofs	97
	4.10 Site plan	35		12.10	Pods	98
	4.11 Super Basement Plan	36		12.11	<i>Precedent 12: Japan Library</i>	100
<b>5 Fashion Fusion</b>	Psychology of fashion			12.12	<i>Precedent 13: Pods</i>	101
	5.1 Identity	37		12.13	Technical precedent1: pods	102
	5.2 Protection & Modesty	39		12.14	Pod detail section 1:20	103
<b>6 Tailor-made</b>	Parallels between fashion and architecture			12.15	Pod skins	104
	6.1 Reconstruction	42		12.16	floors	105
	6.2 Skin and bones	43		12.17	Technical precedents2: floors	106
	6.3 <i>Precedent 3: Centre De Pompidou, Paris, France</i>	44		12.18	Services	108
	6.4 <i>Precedent 4: Skins</i>	45		12.19	Comfort	111
	6.5 Reveal and conceal	46		12.20	<i>Technical precedent3: New 42 Studios, NY</i>	112
	6.6 Creative process	48		12.21	Technical precedent4:skins	113
<b>7 Weave</b>	Transmaterials	50		12.22	Glazing & light quality	114
<b>8 African Avant Garde</b>	redesigning design education			12.23	Electricity	115
	8.1 <i>Precedent 5 :DEFGA</i>	53		12.24	Ventilation	116
<b>9 Vintage Vogue</b>	Longevity of Knoop			12.25	Acoustics & Ergonomics	117
	9.1 Business and Management Strategy Plan	56 57	<b>13 KNOOP</b>			
			Technical documentation	13.1	Elevations	120
				13.2	Plans	122
				13.3	Sections	127
				13.4	Details	131
			<b>Designers</b>			
					References	144



# LIST OF FIGURES



Fig.1	KNOOP Revit model	(Author 2008)	2
Fig.2	KNOOP diagram	(Author 2008)	3
Fig.3	Project Partner Logo's	(Author 2008)	5
Fig.4	Case studies graphic	(Author 2008)	6
Fig.5	Tshwane University of Technology fashion lab	(Author 2008)	7
Fig.6	University of Johannesburg fashion lab	(Author 2008)	
Fig.7	Unitex factory shop	(Author 2008)	
Fig.8	LISOF, Rosebank, Johannesburg fashion lab	(Author 2008)	
Fig.9	Fabric decay New York	(Chuang 2008:19)	8
Fig.10	Context photos	(Author 2008)	9
Fig.11	Site Geomatics map.	City of Tshwane	10
Fig.12	Fashion and architecture graphic	(Edited by Author 2008)	11
Fig.13	'Nicola kies 'n beroep' cartoon	(UP Archive)	12
Fig.14	Existing UP fashion labs	(Author 2008)	
Fig.15	Existing UP lecture room	(Author 2008)	13
Fig.16	Glare in existing fashion lab at UP	(Author 2008)	
Fig.17	Shared office of UP lecturers	(Author 2008)	
Fig.18	Existing UP sewing lab	(Author 2008)	
Fig.19	Existing UP ironing area	(Author 2008)	
Fig.20	Precedent map	(Author 2008)	15
Fig.21	Gautrain stations diagram	(Author based on <a href="http://www.tshwane.gov.za">www.tshwane.gov.za</a> ) (Accessed 26 August 2008)	19
Fig.22	KNOOP site graphic	(Author 2008)	21
Fig.23	Metro scale map	(Author 2008)	2
Fig.24	Proposed land use map	(Author 2008)	23
Fig.25	Precinct Identification SketchUp graphic	(Author 2008)	24
Fig.26	Railway graphic	(Author 2008)	25
	Loftus Rugby stadium	( <a href="http://www.stadiumguide.com_loftus1">www.stadiumguide.com_loftus1</a> ) (Accessed 26 August 2008)	
	UP Administration building	( <a href="http://www.images.google.co.za">www.images.google.co.za</a> ) (Accessed 26 August 2008)	
	UP Human Resources building	( <a href="http://www.wikimedia.org">www.wikimedia.org</a> ) (Accessed 26 August 2008)	
	Gautrain artist impression	( <a href="http://www.tshwane.gov.za">www.tshwane.gov.za</a> ) (Accessed 26 August 2008)	
	Hatfield square	( <a href="http://www.images.travelpod.com">www.images.travelpod.com</a> ) (Accessed 26 August 2008)	
	Innovation hub	( <a href="http://www.images.google.co.za">www.images.google.co.za</a> ) (Accessed 26 August 2008)	
Fig.27	Hatfield linkages	(Author 2008 based on Gautrain Area Guidelines Plan 4.3)	26
Fig.28	Gautrain SketchUp graphic	(Author 2008)	27
Fig.29	Main pedestrian movement	(Author 2008 based on Gautrain Station Functional Area Guidelines, Plan 4.8)	
Fig.30	Proposed land use diagram	(Author 2008)	
Fig.31	Main roads diagram	(Author 2008)	
Fig.32	Hatfield square location SketchUp graphic	(Author 2008)	
Fig.33	Access from Burnette street towards site	(Author 2008)	28
Fig.34	City Property Flats southern façade	(Author 2008)	
Fig.35	Second access corridor from Burnette street towards site	(Author 2008)	
Fig.36	City Property SketchUp graphic	(Author 2008)	
Fig.37	Main linkage towards site from Burnette street	(Author 2008)	
Fig.38	KNOOP neighbours	(Author 2008)	29
Fig.39	Land use map.	City of Tshwane Municipality (2003:7)	31
Fig.40	Gautrain diagram	(Author 2008)	
Fig.41	Urban framework development diagram	(S.T.A.R.T. team 2008)	
Fig.42	Urban framework development diagram	(S.T.A.R.T. team 2008)	
Fig.43	Urban framework development diagram	(S.T.A.R.T. team 2008)	
Fig.44	Urban framework development diagram	(S.T.A.R.T. team 2008)	
Fig.45	Urban framework development diagram	(S.T.A.R.T. team 2008)	
Fig.46	Site development concept model 1	(S.T.A.R.T. team 2008)	32
Fig.47	Site development concept model 2	(S.T.A.R.T. team 2008)	
Fig.48	Fashion district, Johannesburg Fashion ramp, Jhb	(Fashion Square, July 2005:5)	33
Fig.49	Fashion square	(Fashion Square, July 2005:11)	
Fig.50	Fashion square	(Fashion Square, July 2005:13)	
Fig.51	Fashion square	(Fashion Square, July 2005:15)	
Fig.52	Fashion square	(Fashion Square, July 2005:20)	
Fig.53	Fashion square	Available from:	
Fig.54	Schouwburgplein artist impression	( <a href="http://www.netzspannung.org_files">www.netzspannung.org_files</a> ) (Accessed 17 April 2008)	34
Fig.55	Schouwburgplein, Rotterdam	( <a href="http://www.beamerplanet.nl">www.beamerplanet.nl</a> ) (Accessed 17 April 2008)	
Fig.56	Schouwburgplein	( <a href="http://www.eikongraphia.com">www.eikongraphia.com</a> ) (Accessed 17 April 2008)	
Fig.57	Schouwburgplein	( <a href="http://www.milov.nl">www.milov.nl</a> ) (Accessed 17 April 2008)	
Fig.58	Site plan 1:1000	(Author & S.T.A.R.T team 2008)	35
Fig.59	Super basement plan	(Author & S.T.A.R.T team 2008)	36



Fig.60	Fashion models	(www.fashion-ation.net) (Accessed 7 August 2008)	37
Fig.61	Army jacket fashion sketch	(www.voguepatterns.com) (Accessed 15 October 2008)	40
Fig.62	Party dress	(www.t reehugger.com) (Accessed 5 February 2008)	41
Fig.63	Urban renewal by Mari Santos	(www.wiredminds.ca/mari/urban.html ) (Accessed 2008)	42
Fig.64	Jacket turned inside out	(Author 2008)	43
Fig.65	Centre Pompidou service ducting	(www.sjsu.edu) (Accessed 2 July 2008)	44
Fig.66	Centre Pompidou model	www.richardrogers.co.uk (Accessed 7 July 2008)	
Fig.67	Centre Pompidou artist impression	www.richardrogers.co.uk (Accessed 7 July 2008)	
Fig.68	Centre Pompidou section	www.richardrogers.co.uk (Accessed 7 July 2008)	
Fig.69	Tattoo house, Australia	(www.andrewmaynard.com) (Accessed 21 May 2008)	45
Fig.70	Ai Café, Japan	(www.monsterandcritics.com_arts) (Accessed 9 July 2008)	
Fig.71	Hairywood tower, London	(www.wayfaring.info2007) (Accessed 13 April 2008)	
Fig.73	Anders Edstorm urban fashion photography	(Quinn,2003:202)	46
Fig.74	Hidden girl image	www.objectsinspaceandtime.com (Accessed 23 April 2008)	
Fig.75	Creative process diagram	Jean-Pierre de la Porte input 6 July 2008	47
Fig.76	Vintage dress	(www.sewingtoday.com) (Accessed 23 October 2008)	56
Fig.77	Design development diagram	(Author 2008)	58
Fig.78	Design development sketches	(Author 2008)	59
Fig.79	Concept 1 first floor plan (not to scale)	(Author 2008)	60
Fig.80	Concept model 1	(Author 2008)	
Fig.81	Concept 2 development	(Author 2008)	61
Fig.82	Multi-level runway	(thecoolhunter.net - home8_files) (Accessed 17 May 2008)	62
Fig.83	Coco Chanel runway	(thecoolhunter.net - home8_files) (Accessed 17 May 2008)	
Fig.84	Concept 1 ff & 2 <sup>nd</sup> f	(Author 2008)	
Fig.85	Concept 1 model	(Author 2008)	
Fig.86	Concept 2 gf & ff	(Author 2008)	
Fig.87	Concept 2 model	(Author 2008)	
Fig.88	DESIGN DEV2 Ground floor conceptual plan	(Author 2008)	63
Fig.89	First floor conceptual plan	(Author 2008)	
Fig.90	Concept model 3	(Author 2008)	
Fig.91	Pod exploration concept models	(Author 2008)	
Fig.92	Concept model 4	(Author 2008)	
Fig.93	Circulation diagram	(Author 2008)	64
Fig.94	Public vs. private diagram	(Author 2008)	
Fig.95	Arcade diagram	(Author 2008)	
Fig.96	Retail location diagram	(Author 2008)	
Fig.97	Neighboring building green space diagram	(Author 2008)	
Fig.98	Creative process diagram	(Author 2008)	
Fig.99	Building interaction diagram	(Author 2008)	
Fig.100	Stitching neighboring buildings through time diagram	(Author 2008)	
Fig.101	KNOOP concept models	(Author 2008)	65
Fig.102	KNOOP diagrammatic sketch	(Author 2008)	67
Fig.103	Conceptual skin development (Author)	(Author 2008)	68
Fig.104	Skin development diagrams (Author)	(Author 2008)	69
Fig.105	Bauhaus	(www.fhlocaustmuseum.org_bauhaus02) (Accessed 26 July 2008)	70
Fig.106	Bauhaus	(www.natureparktravel.com_weimar_bauhaus2) (Accessed 26 July 2008)	
Fig.107	Dré Wapenaar Hang-Kiss-and Smoke spot 2002	(www.drewapenaar.nl) (Accessed 2 July 2008)	71
Fig.108	Pavilion of emptiness 2008	(www.drewapenaar.nl) (Accessed 2 July 2008)	
Fig.109	Newspaper kiosk 1997	(www.drewapenaar.nl) (Accessed 2 July 2008)	
Fig.110	Hairdresser interior, New York	(www.thecoolhunter.net) (Accessed 20 May 2008)	72
Fig.111	Richmond warehouse, Melbourne	(Cheng, 2003:35)	
Fig.112	Alpana Bawa New York studio	(Chuang, 2006:131)	
Fig.113	Victoria Keen New York studio	(Chuang, 2006:98)	
Fig.114	Mac make-up New York Hair studio	Elle decoration house&leisure jan-feb2007	
Fig.115	Deli interior, Cape Town	(www.thecoolhunter.net) (Accessed 20 May 2008)	
Fig.116	Ban Suan Saghob, Bangkok, Thailand	(Cheng,2003:366)	73
Fig.117	www.ecotist.com	(Accessed 15 July 2008)	
Fig.118	Winter range model	www.style.com (Accessed 30 August 2008)	74
Fig.119	Casa De Rodriguez hat studio New York	(Chuang,2006:176)	
Fig.120	Jutta Neumann NY Inc. shoe studio	(Chuang,2006:167)	
Fig.121	Mary Ping studio	(Chuang,2006:61)	
Fig.122	Leif and Tooya studio New York	(Chuang,2006:17)	
Fig.123	Casa De Rodriguez hat studio New York	(Chuang,2006:178)	
Fig.124	KNOOP users	(Edited by Author 2008)	75
Fig.125	The sartorialists	(www.style.com) (Accessed 26 March 2008)	77



Fig.126	Creative link section diagram	(Author 2008)	80
Fig.127	Creative link plan diagram	(Author 2008)	
Fig.128	Ground floor creative links	(Author 2008)	81
Fig.129	First floor creative links	(Author 2008)	
Fig.130	Second floor creative links	(Author 2008)	
Fig.131	Public vs. Private diagrams	(Author 2008)	82
Fig.132	Main circulation vs. service walkways diagrams	(Author 2008)	83
Fig.133	Space suit image	www.google/images.com (Accessed 15 June 2008)	85
Fig.134	Material choice diagram	(Author 2008)	87
Fig.135	Sequence scan	(Author 2008)	88
Fig.136	Sexy image	house&leisure jan-feb2007	
Fig.137	Bead scan	(Author 2008)	
Fig.138	Twentinox Architectural Metal Mesh	(www.twentinox.de) (Accessed 9 July 2008)	
Fig.139	Lace scan	(Author 2008)	
Fig.140	Omega 1550 gkd screen	(www.gkdmetailfabrics.com) (Accessed 11 September 2008)	
Fig.141	Twentinox close up	(www.twentinox.de) (Accessed 9 July 2008)	
Fig.142	joep verhoeven/demakersvan plastic-coated copper wire	(Fairs. 2006:319)	
Fig.143	Structural frame	Kurt Waelbers engineer	89
Fig.144	Frame strength calculations	Mr. Kurt Waelbers (8 August 2008)	
Fig.145	KNOOP Revit graphic	(Author 2008)	90
Fig.146	British Pavilion for Expo 92 / Grimshaw Architects	(http://www.grimshaw-architects.com) (Accessed 15 June 2008)	91
Fig.147	British Pavilion for Expo 92 canopies	(http://www.grimshaw-architects.com) (Accessed 15 June 2008)	
Fig.148	Ombre garments	(www.blog.buffalostate.edu) (Accessed 23 October 2008)	92
Fig.149	Biovac Institute,	(Architect and Builder June-July 2007:62)	94
Fig.150	Wall house , Santiago de Chile	(www.dezeen.com) (Accessed 16 February 2008)	95
Fig.151	Eko Park Pavilion, Warsaw, Poland / Apa Kurylowicz & Ass.	(Ballard Bell & Rand. 2006:250-252)	96
Fig.152	Andrew Maynard Japan Library Pod	(www.andrewmaynard.com) (Accessed 25 May 2008)	99
Fig.153	suspension mechanism section	(Author 2008)	
Fig.154	Concept2 model of pods	(Author 2008)	
Fig.155	Caravan construction	(www.claireandsean.com) (Accessed 14 June 2008)	
Fig.156	Pod isometric	(Author 2008)	
Fig.157	Japan Library	(www.andrewmaynard.com) (Accessed 21 May 2008)	100
Fig.158	Peckham Library artist impression by Will Alsop Peckham Library at night	(www.alsoparchitects.com) (Accessed 24 July 2007)	101
	Library interior pod structure	(image.guardian.co.uk_sys-images_books...pecklib) (Accessed 24 July 2007)	
Fig.159	Bordeaux Law Courts	(www.archidose.org) (Accessed 22 October 2008)	
Fig.160	Alliedhealth consultation rooms	(www.richardrogers.co.uk) (Accessed 2 July 2008)	
Fig.161	POD Cross section through	(www.thecoolhunter.net) (Accessed 7 August 2008)	102
Fig.162	Three dimensional image of capsule	roof (The Architect's Journal 8 November 2000:33)	
Fig.163	Long section through capsule	(Metal Works Summer 2000)	
Fig.164	Pod section 1:20	(Metal Works Millennium Projects Summer 2000)	
Fig.165	Hannibal roof tent	(Author 2008)	103
Fig.166	Pod skins	(www.Wikipedia/Hannibal) (Accessed 14 July 2008)	
Fig.167	Heavy duty velcro	(Author 2008)	
Fig.168	FLOOR Cut away isometric of floor construction	www.3Mreclosable fastener tape.htm (Accessed 14 July 2008)	
Fig.169	Cut- away of typical floor, Birmingham school of Art	(The Architect's Journal 8 November 2000:33)	108
Fig.170	Floor construction development	(The Architect's Journal 16 November 1995:57)	
Fig.171	Shoe analogy image	(Author 2008)	107
Fig.172	Service skin Revit graphic	(Author 2008)	108
Fig.173	Basement column diagram	(Author 2008)	109
Fig.174	KNOOP Sewerage diagram	Mr. Kurt Waelbers (6 October 2008)	
Fig.175	KNOOP Water diagram	(Author 2008)	110
Fig.176	KNOOP fire water distribution	(Author 2008)	
Fig.177	Runway model in bikini	(www.style.com) (Accessed 14 June 2008)	111
Fig.178	New 42 Studios, N Y/ Platt Byard Dovell White Architects	(Ballard Bell & Rand. 2006:51)	112
Fig.179	SKIN Exploded animation through elevation	(The Architect's Journal 7 July 2005:55)	113
Fig.180	Cut away isometric of west wall junction	(The Architect's Journal 9 January 2003)	
Fig.181	Screen fixing detail, TFL International headquarters, Preston	(The Architect's Journal 9 January 2003)	
Fig.182	KNOOP power supply diagram	(Author 2008)	115
Fig.183	Model and fan image	(www.fashion-ation.) (Accessed 26 August 2008)	116
Fig.184	Smartglass Soundprufe	(www.smartglass.co.za) (Accessed 28 May 2008)	117
Fig.185	Multi-level fashion ramp	(thecoolhunter.net - home6_files) (Accessed 17 May 2008)	118





The essence of this dissertation is to explore the synergies between fashion and architecture as visual communicators with the aim to create a place of “orientation” and “identification” for the urban nomad.

In his book *Genius Loci – Towards a Phenomenology in Architecture*, Norberg-Schulz identifies these two functions as the means by which man gives meaning to his environment in order to be at home in this world. Where “orientation” and “identification” are not present in an environment, man feels alienated. (1980:19)

In the first chapter of this document we will assess the real world problem of urban fabric decay in the Hatfield area, where the emptiness of the chosen site has left a void in the landscape. We will explore how this void was not seen as a limitation by the designers, but rather as an opportunity to enhance its possibilities, as it often takes an artist’s eye to find beauty in that what seems damaged. The second chapter urges that the arts should be elevated in a developing country such as South Africa in order to assert people with a sense of self worth and belonging.

In chapter three we evaluate the existing urban context in regards to three major influences on site choice: the Gautrain station adjacent to the site, the UP Vision for a Future Urban Campus, and S.T.A.R.T. – the Urban Framework for the Hatfield area that aims at Social Transition through the Activation of Regenerative Techniques.

Chapter four involves a site analysis where care was taken to include the existing natural aspects along with the relevant cultural and historical layers of the site to expose a wardrobe of opportunities in the design for the three schools. To unbutton the potential of a fashion school, an in depth study into the psychology of fashion added further richness to the design. This is discussed in chapter five and leads up to chapter six where parallels are drawn between fashion and architecture.

To draw value from such a discussion, one has to apply the theory to a relevant design challenge. The project envisages a fresh approach to cross-pollination between the arts. In chapter seven and eight the relevance of this approach in South Africa becomes apparent when it is illustrated how a theme such as ‘reconstruction’ can add value to the urban landscape and in chapter nine the longevity of such a project is questioned and defended with a business and management strategy plan.

Finally CMT (Cut, Make, Trim) is a humoristic play on the fashion industry’s process of manufacturing. Chapter ten (Cut) involves the design development, chapter eleven (Make) the functional and spatial design execution and chapter twelve (Trim) the technical investigation.

Throughout the project, KNOOP was not seen in isolation, but as part of a larger design reality with a common thread - that of designing a place for the people.

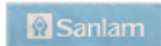
# introduction



education  
design  
management



University of Pretoria



SUPPORTING  
S.A.  
FASHION'S  
FUTURE



fig.3



project partners



# case studies





UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA



fig.5



Tshwane University  
of Technology  
*We empower people*



fig.6



UNIVERSITY  
OF  
JOHANNESBURG

PTA  
JHB



fig.8



fig.7

# case studies