

APPENDIX A

Average Johannesburg Climatic Conditions

Month	Temperature				Precipitation		
	Highest Recorded	Average Daily Maximum	Average Daily Minimum	Lowest recorded	Average Monthly (mm)	Average Number of days with ≥ 1 mm	Highest 24 Hour Rainfall (mm)
January	35	26	15	7	125	16	188
February	34	25	14	6	90	11	56
March	32	24	13	2	91	12	92
April	29	21	10	1	54	9	50
May	26	19	7	-3	13	3	70
June	23	16	4	-8	9	2	31
July	24	17	4	-5	4	1	17
August	326	19	6	-5	6	2	21
September	31	23	9	-3	27	4	62
October	32	24	11	0	72	10	110
November	33	24	13	2	117	15	65
December	32	25	14	4	105	15	102
Year	35	22	10	-9	713	99	188

Source: SOUTH AFRICAN WEATHER SERVICES

APPENDIX B

HOUSING TARGET SETTING

Analysis of population density per hectare by comparing housing space standards against household size demand and block floor area potential. The figures are based on the 69m x 69m city block (residential to assumed centre of street dims.) using typical housing typologies. The target net residential floor area is 3000m.


Number of units in the proposed city block in proportion of household distribution in social survey and by floor area per person																	
Space per person (m2)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
Total Nr. Of units	80	72	66	60	56	52	50	46	44	42	40	36	34	34	32	30	
Household distribution																	
3bed @ 6 pers.	20%	16	14.5	13.5	12	11.5	10.5	10	9.5	9	8.5	8	7.5	7	7	6.5	6
3bed @ 5 pers.	20%	16	14.5	13.5	12	11.5	10.5	10	9.5	9	8.5	8	7.5	7	7	6.5	6
2bed @ 4 pers.	20%	16	14.5	13.5	12	11.5	10.5	10	9.5	9	8.5	8	7.5	7	7	6.5	6
2bed @ 3 pers.	20%	16	14.5	13.5	12	11.5	10.5	10	9.5	9	8.5	8	7.5	7	7	6.5	6
1bed @ 2 pers.	10%	8	7	6	6	5	5	5	4	4	4	4	3	3	3	3	3
1bed @ 1 pers.	10%	8	7	6	6	5	5	5	4	4	4	4	3	3	3	3	3
Total m2		3120	3102	3132	3042	3108	3060	3120	3111	3123	3135	3120	3024	2970	3105	3024	2925


Total Nr. Of units + 40%																	
For other uses	112	101	92	84	78	73	70	64	62	59	56	50	48	48	45	42	


Figures per hectare																	
Calculated by converting figures per block (above) into per hectare																	
Block multiplier = 2,69																	
Units per hectare	301	272	247	226	210	196	188	172	167	159	151	135	129	129	121	113	


At a residential (land use) density x% the following population densities would accrue (people per hectare)																	
20%	235	213	196	176	167	153	147	138	131	124	118	108	102	102	95	88	
30%	352	319	294	265	251	230	221	207	197	187	176	163	152	152	143	132	
40%	470	425	392	353	334	307	294	276	262	249	235	217	203	203	190	176	
50%	587	532	491	441	418	384	368	345	328	311	294	271	254	254	238	220	
60%	704	638	587	529	502	460	441	414	393	373	353	325	305	305	285	264	
70%	822	744	687	617	585	537	515	483	459	435	412	379	356	356	332	308	
80%	939	850	785	706	669	614	588	552	524	498	470	436	406	406	380	352	
100%	1174	1063	981	882	836	767	735	690	655	622	588	542	508	508	475	440	


KEY:

 Density too low to support commercial activity

 Residential land use % too low for Newtown.

 Excessive strain on economic and social infrastructure

 Residential land use % too high for inner city

 Target residential density at land use

APPENDIX C

1. Aids Training Information and Counseling centre

City: Pietermaritzburg Province: KwaZulu- Natal

Users per week: 45

Uses:

Information office	Policy making
Counseling referrals	Advice office
Resource centre	Health services
Capacity building	Library
Training and education	HIV testing and counseling
Meetings	

2. Western Cape Aids Training and Counseling centre

City: Capetown Province: Western Cape

Users per week: 100

Uses:

Information office	Meetings
Counseling referrals	Copying documents
Resource centre	Library
Capacity building	HIV testing
Training and education	

Source: MPCC record details (2003)

APPENDIX D

Building Lighting Requirements:

	Standard service illuminance	Position of measurement	Limiting glare index	Colour appearance of lamp	Average daylight factor	Minimum daylight factor	Position of Measurement	Limiting daylight glare index
Housing requirements:								
Living/ Dinning rooms	50	Working plane	-	Intermediate or warm	-	-	-	-
Kitchen	300	Working surface	-	Intermediate or warm	-	-	-	-
Bedrooms	50	Floor	-	Intermediate or warm	-	-	-	-
Bathroom	100	Floor	-	Intermediate or warm	-	-	-	-
Office requirements:								
Offices	500	Desk	19	Intermediate or warm	5	2	Desks	23
Inter office circulation- 15%	100	1,2 m above floor	22	Intermediate or warm	2	0,6	Floor	24
Multipurpose centre:								
Reception	150	1,2m above floor	-	Intermediate or warm	2	0,6	Working plane	24
Administration	500	Desk	19	Intermediate or warm	5	2	Desks	23
Record storage	150	Vertical at floor	19	Intermediate or warm	-	-	-	-
Waiting area- 6 pers/consult	150	1,2m above floor	-	Intermediate or warm	2	0,6	Working plane	24
Consulting rooms	500	Desk or bed	-	Intermediate or warm	5	2,5	Working plane	21
Treatment rooms	500	Desk or bed	-	Intermediate or warm	5	2,5	Working plane	21
Lecture rooms	300	Desk	6 to 19	Intermediate or warm	5	2	Desks	21
Library/ info. centre	300	Table	19	Intermediate or warm				
Circulation areas:								
Corridors and passageways	100	1,2 m above floor	22	Intermediate or warm	2	0,6	Floor	24
Stairs	150	Treads	-	Intermediate or warm	2	0,6	Treads	-

Source: Tutt, P & Adler, D. 1998. *New Metric Handbook*. Great Britain: MPG Books Ltd.

APPENDIX E**Minimum Air Requirements Per Person**

Minimum Air Requirements	
Housing requirements:	
Living/ Dinning rooms	5,0
Kitchen	50,0
Bedrooms	
Bathroom	25,0
Office requirements:	
Offices	5,0
Inter office circulation- 15%	
Multipurpose centre:	
Reception	5,0
Administration	5,0
Record storage	5,0
Waiting area	5,0
Consulting rooms	
Treatment rooms	
Lecture rooms	7,5
Library/ info. centre	6,5
Circulation areas:	
Corridors and passageways	5,0
Stairs	5,0

Source: Tutt, P & Adler, D. 1998. New Metric Handbook. Great Britain: MPG Books Ltd.

APPENDIX F

Projected Water Consumption:

Residential component: 131 Persons 33 units

Residents:	Conventional	Day usage	Annual use	Efficient	Day usage	Annual use
Flush toilets	10 l	1310 l	478150 l	6 l	786 l	286890 l
Showers	0,4 l/s - 0,7 l/s	43230 l - 10min	15778950 l	0,2 l/s	15720 l - 10min	5737800 l
Taps	0,25 l/s - 0,3 l/s	6484,5 l - 3min	2366842 l	0,03 l/s -0,17 l/s	2358 l - 3min	860670 l
Dishwashing	45 - 68 l/wash	1864,5 l	680543 l	12 l/wash	396 l	144540 l
Laundry	28 l pers./ week	524 l	191260 l	15 l pers./ week	281 l	102565 l
			19495745 l		19541 l	7132465 l

Visitors	Conventional	Day usage	Annual use	Efficient	Day usage	Annual use
Each unit 1 visitor per week						
Flush toilets	10 l	47,15 l	17209,5 l	6 l	28 l	10311 l
Taps	0,25 l/s - 0,3 l/s	38,9 l - 30 sec	14198,5 l	0,03 l/s -0,17 l/s	14 l	5146,5 l
			31408 l			1545,5 l

Office component: 120 Persons

120 Staff:	Conventional	Day usage	Annual use	Efficient	Day usage	Annual use
Flush toilets	10 l	1200 l	294000 l - 245 day	6 l	720	176400 l- 245 day
Taps	0,25 l/s - 0,3 l/s	990 l - 30 sec	242550 l - 245 day	0,03 l/s -0,17 l/s	360 l - 30 sec	88200 l- 245 day
			536550 l		1080 l	264600 l

Visitors	Conventional	Day usage	Annual use	Efficient	Day usage	Annual use
5% visitors per hour- 50% usage						
Flush toilets	10 l	240 l	58800 l	6 l	144 l	35280 l
Taps	0,25 l/s - 0,3 l/s	198 l	48510 l	0,03 l/s -0,17 l/s	72 l	17640 l
			107310			52920 l

Community centre component:

15 Staff:	Conventional	Day usage	Annual use	Efficient	Day usage	Annual use
Flush toilets	10 l	150 l	45000 l -300 day	6 l	60 l	18000 l- 300 day
Taps	0,25 l/s - 0,3 l/s	1237,5 l - 5 min	371250 l -300 day	0,03 l/s -0,17 l/s	450 l	135000 l- 300 day
			416250 l			153000 l

Visitors	Conventional	Day usage	Annual use	Efficient	Day usage	Annual use
100 day (est) 50% usage						
Flush toilets	10 l	500 l	150000 l	6 l	300 l	90000 l
Taps	0,25 l/s - 0,3 l/s	412,5 l - 30 sec	123750 l	0,03 l/s -0,17 l/s	150 l	45000 l
			273750 l			135000 l

Retail component:

30 Staff (est.)	Conventional	Day usage	Annual use	Efficient	Day usage	Annual use
Flush toilets	10 l	300 l	90000 l - 300 day	6 l	180 l	54000 l- 300 day
Taps	0,25 l/s - 0,3 l/s	247,5 - 30 sec	74250 -300 day	0,03 l/s -0,17 l/s	90 l	27000 l- 300 day
			164250 l			81 000 l-300 day

Visitors	Conventional	Day usage	Annual use	Efficient	Day usage	Annual use
150 users per day (estimated)						
Flush toilets	10 l	1500 l	450000 l - 300 day	6 l	900 l	270000 l-300 day
Taps	0,25 l/s - 0,3 l/s	1237,5 l - 30 sec	371250 l - 300 day	0,03 l/s -0,17 l/s	450 l	135000 l-300 day
			821250 l			405000 l

Irrigation

Estimated			2000000			2000000
-----------	--	--	----------------	--	--	----------------

Total consumption annually

23846513 litres**10225530 litres**

APPENDIX G

PROJECTED RAINWATER HARVESTING POSSIBILITY

Estimated area under roof (excluding roof gardens):

Office block 585m + South wing 500m + West wing 497m = **1582m**

Average annual rainfall = **713mm**

$1582 \times 0,713 = 1128$ cubic metres of rain falls onto roofed surface annually

$1128 \times 1000 = \mathbf{1128000}$ litres of water falls onto roofed surface annually