6. CONCLUSION

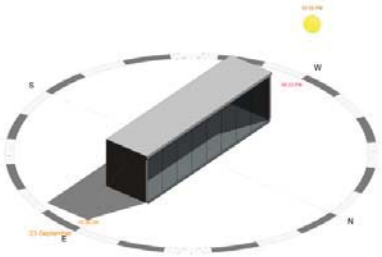
The dissertation is a study in the nature and form of water in an urban environment. The purpose of the dissertation was to consider the use of water in a public urban space where it has largely been absent.

A spatial vocabulary of physical and non-physical boundaries and fascinated situations has been investigated as themes in this study to describe the origin, development and contemporary spatial condition of Johannesburg in the group framework. It has subsequently been adopted to animate an understanding of the context and a reaction to it through design.

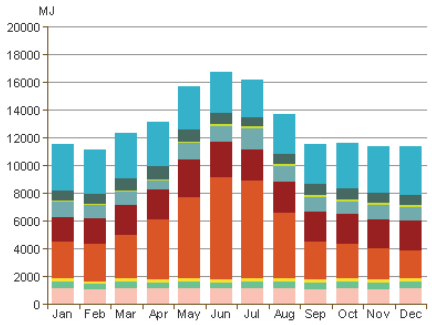
The design process has been invigorated with an analysis of the development of the context that takes the growth and stagnation of fantasies and fragments into account. In an atempt to realise a design intervention, the dichotomy between the conceptual nature of water and the rational form saw a design in fovour of the detail resolution where the evryday use and ritual in water is celebrated in public space.

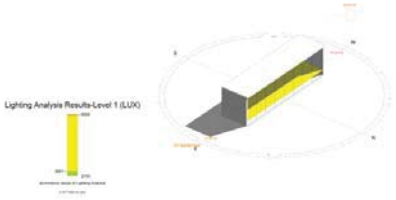
The value of the architecture as a contextual response lies in the exploration of the manifold relationships between the city user, urban fabric and the natural environment and urban as well as human scale at which the haptic experience unfolds.

SINGLE GLAZING WALL



Monthly Cooling Load



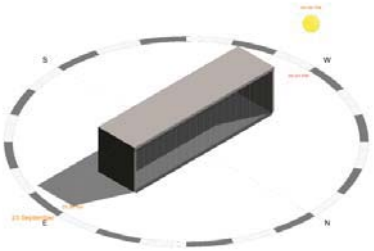


LIGHTING ANALYSIS FOR REVIT

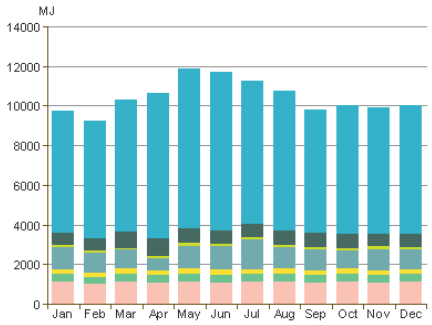
LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

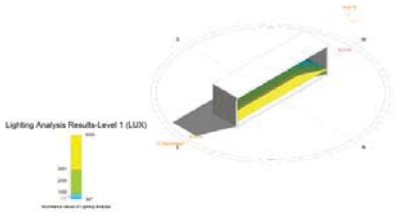
9AM SEPTEMBER 22 3AM SEPTEMBER 17
GHI: 644. DNI: 727. DHI: 93 WIM2 GHI: 525. DNI: 90. DHI: 90 WIM2
INCLUDED AREA BELOW LOWER THRESHOLD: 21% INCLUDED AREA BELOW LOWER THRESHOLD: 18%
INCLUDED AREA PASSING THRESHOLD LIMITS: 78% INCLUDED AREA PASSING THRESHOLD LIMITS: 82%
INCLUDED AREA ABOVE UPPER THRESHOLD: 1% INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
NOTES:

POLYCARBONATE



Monthly Cooling Load





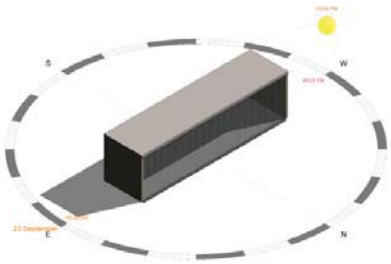
50% TRANSPARRANCY 20 MM CLEAR POLYCARB

LIGHTING ANALYSIS FOR REVIT

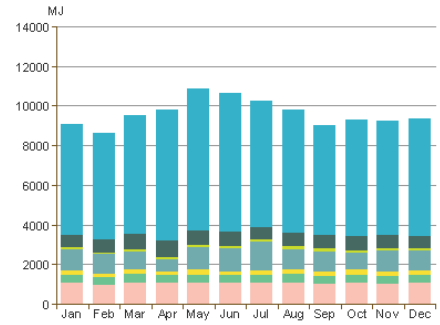
LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

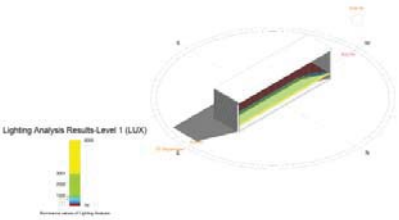
9AM SEPTEMBER 22 3AM SEPTEMBER 17
GHI: 644. DNI: 727. DHI: 93 WIM2 GHI: 525. DNI: 90. DHI: 90 WIM2
INCLUDED AREA BELOW LOWER THRESHOLD: 0% INCLUDED AREA BELOW LOWER THRESHOLD: 0%
INCLUDED AREA PASSING THRESHOLD LIMITS: 59% INCLUDED AREA PASSING THRESHOLD LIMITS: 52%
INCLUDED AREA ABOVE UPPER THRESHOLD: 41% INCLUDED AREA ABOVE UPPER THRESHOLD: 48%

DOUBLE POLYCARBONATE



Monthly Cooling Load



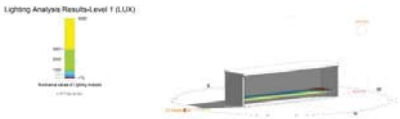


50% TRANSPARRANCY 20 MM CLEAR POLYCARB X2

LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

9AM SEPTEMBER 22 3AM SEPTEMBER 17
GHI: 644. DNI: 727. DHI: 93 WIM2 GHI: 525. DNI: 90. DHI: 90 WIM2
INCLUDED AREA BELOW LOWER THRESHOLD: 99% INCLUDED AREA BELOW LOWER THRESHOLD: 99%
INCLUDED AREA PASSING THRESHOLD LIMITS: 1% INCLUDED AREA PASSING THRESHOLD LIMITS: 1%
INCLUDED AREA ABOVE UPPER THRESHOLD: 0% INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
NOTES:



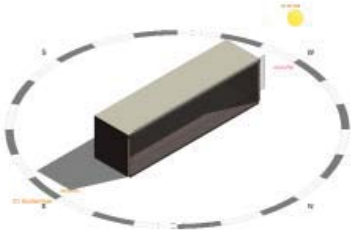
50% TRANSPARRANCY 20 MM CLEAR POLYCARB X2 NORTH + SOUTH

LIGHTING ANALYSIS FOR REVIT

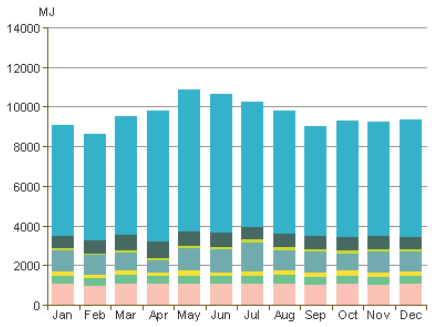
LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

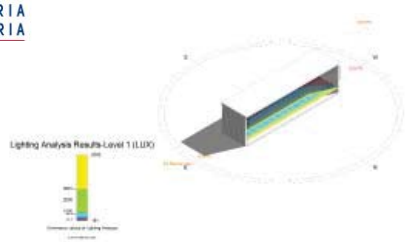
9AM SEPTEMBER 22 3AM SEPTEMBER 17
GHI: 644. DNI: 727. DHI: 93 WIM2 GHI: 525. DNI: 90. DHI: 90 WIM2
INCLUDED AREA BELOW LOWER THRESHOLD: 8% INCLUDED AREA BELOW LOWER THRESHOLD: 8%
INCLUDED AREA PASSING THRESHOLD LIMITS: 81% INCLUDED AREA PASSING THRESHOLD LIMITS: 81%
INCLUDED AREA ABOVE UPPER THRESHOLD: 11% INCLUDED AREA ABOVE UPPER THRESHOLD: 11%

ALUMINIUM



Monthly Cooling Load

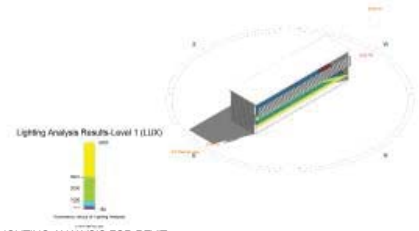




LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

9AM SEPTEMBER 22 — 3AM SEPTEMBER 17
GHI: 644. DNI: 727. DHI: 93 WIM2 — GHI: 525. DNI: 90. DHI: 90 WIM2
INCLUDED AREA BELOW LOWER THRESHOLD: 38% — INCLUDED AREA BELOW LOWER THRESHOLD: 29%
INCLUDED AREA PASSING THRESHOLD LIMITS: 61% — INCLUDED AREA PASSING THRESHOLD LIMITS: 70%
INCLUDED AREA ABOVE UPPER THRESHOLD: 1% — INCLUDED AREA ABOVE UPPER THRESHOLD: 1%

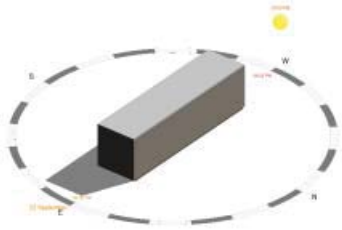


LIGHTING ANALYSIS FOR REVIT

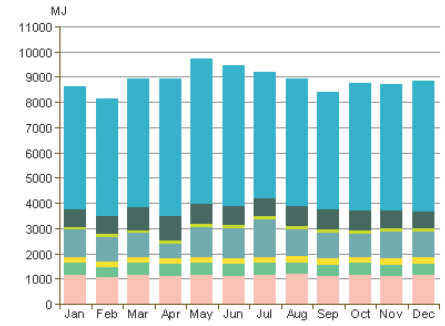
LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

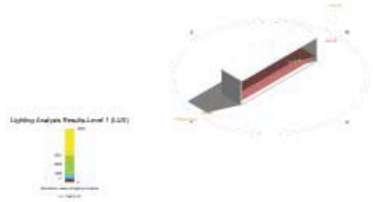
9AM SEPTEMBER 22 — 3AM SEPTEMBER 17
GHI: 644. DNI: 727. DHI: 93 WIM2 — GHI: 525. DNI: 90. DHI: 90 WIM2
INCLUDED AREA BELOW LOWER THRESHOLD: 13% — INCLUDED AREA BELOW LOWER THRESHOLD: 11%
INCLUDED AREA PASSING THRESHOLD LIMITS: 86% — INCLUDED AREA PASSING THRESHOLD LIMITS: 89%
INCLUDED AREA ABOVE UPPER THRESHOLD: 1% — INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
NOTES:
LEED REQUIRES THAT BOTH ANALYSIS TIMES MEET PASSING CRITERIA OF AT LEAST 75%

220 MASONRY WALL

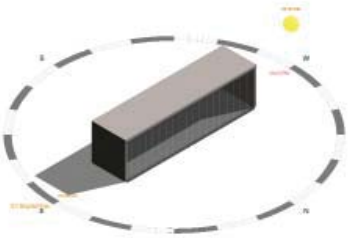


Monthly Cooling Load

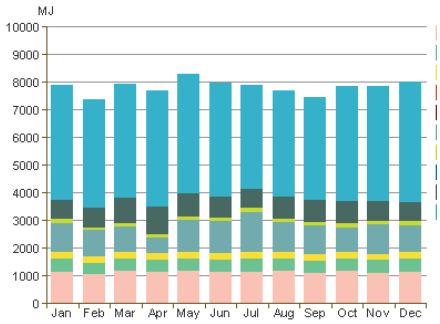


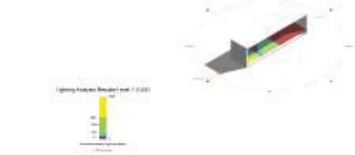


INSULATION



Monthly Cooling Load





50% TRANSPARRANCY 20 MM CLEAR POLYCARB 20MM 32 DENSITY GLASS FIBRE BATTING

LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

9AM SEPTEMBER 22 — 3AM SEPTEMBER 17
GHI: 644. DNI: 727. DHI: 93 WIM2 — GHI: 525. DNI: 90. DHI: 90 WIM2
INCLUDED AREA BELOW LOWER THRESHOLD: 59% — INCLUDED AREA BELOW LOWER THRESHOLD: 53%
INCLUDED AREA PASSING THRESHOLD LIMITS: 40% — INCLUDED AREA PASSING THRESHOLD LIMITS: 47%
INCLUDED AREA ABOVE UPPER THRESHOLD: 1% — INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
NOTES:
LEED REQUIRES THAT BOTH ANALYSIS TIMES MEET PASSING CRITERIA OF AT LEAST 75%

50% TRANSPARRANCY 20 MM CLEAR POLYCARB 20MM 16 DENSITY GLASS FIBRE BATTING

LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

9AM SEPTEMBER 22 — 3AM SEPTEMBER 17
GHI: 644. DNI: 727. DHI: 93 WIM2 — GHI: 525. DNI: 90. DHI: 90 WIM2
INCLUDED AREA BELOW LOWER THRESHOLD: 0% — INCLUDED AREA BELOW LOWER THRESHOLD: 0%
INCLUDED AREA PASSING THRESHOLD LIMITS: 1% — INCLUDED AREA PASSING THRESHOLD LIMITS: 0%
INCLUDED AREA ABOVE UPPER THRESHOLD: 100% — INCLUDED AREA ABOVE UPPER THRESHOLD: 100%
NOTES:

			VARIABLE WALLS						
						K			
				U VALUE (CON-DUC-TANCE)	R VALUE (INSULA-TION) THERMAL RESIS-TANCE	THERMAL/MA-TERIAL CONDUCTIVITY	THER-MAL MASS	MATERIAL DENSITY	SOLAR HEAT GAIN FACTOR SHGF
	MODEL A			W/M²K	M²K/W	W/MK	KJ/K		
		220	FIRED CLAY BRICK	2	0.44	0.54		1 550	
	MODEL B								
		6	SINGLE GLAZING	6	0.91	1.1		2480	CLEAR 0.84
	MODEL C								
		6	GLAZING	3	2.04	1.1		2480	0.67
		12	AIR SPACE						
		6	GLAZING			1.1		2480	
	MODEL D								
		10	POLYCARBONATE			0.192		1350	
	IMPACT RESIS-TANCE, WEIGHT, UV PROTECTION		SUNPAL 600 X 25.5 X 33 10MM	2.10	0.47				50% 0.56
			MULTIWALL CLICKFIX 40MM			0.99			44% 0.28
			DUROPLASTIC	2.5					34%
			TUFLITE 16MM			0.21		1200	80& (CLEAR)
			AMPELITE LEXAN THERMOCLEAR 16 MM THERMOCLICK 40 MM POLYRIB 16	 2.27 1.27 2					 74 (CLEAR) 59 0.64 62
	MODEL E								
		10	POLYCARBONATE						
		150	AIR SPACE		1				
		10	POLYCARBONATE						
			DANPATHERM K 7 FACADE AIR GAP 12 46 12 INSULATED GAP 12 46 12	 1.18 0.79	 0.89				 35 0.4 19 0.3
	MODEL F								
		10	POLYCARBONATE						
		150	AIR SPACE		1				
		10	POLYCARBONATE						
		200	AIR SPACE		1				
		10	ALUMINIUM		0.61	230		2700	

APPENDIX 1

			EXISTING POOL	WADING POOL	INDOOR LAP POOL	HYDROTHER-APY
	POOL WATER AREA M² AREA TO BE SERVED BY CHANGING ROOMS		726	70	150	55
	STEADY STATE CONDITION					
A	CAPACITY WATER AREA (RANGING FROM 3M² PER PERSON FOR UNPROGRAMMED SWIMMING TO 6M² PER PERSON FOR PROGRAMMED SWIMMING)		145	23	25	18
B	ASSSUMED TIME IN POOL COURT (HOURS)		0.75	0.75	0.75	0.75
C	NUMBER CHANGING PER HOUR = A/B		193	31	33	24
D	NUMBER OF PLACES REQ= C/4.5 (CHANGING ROOMS OPEN OR CLOSED) M + F 4.5 BY ASSUMING AN AVG. TIME FOR CHANGING OF 13 MINUTES DIVIDED IT INTO 1 HOUR		43	7	7	5
E	LOCKER PROVISION = A X 75%		108	17	19	14
	SANITARY APLLIANCES					
	MALE OCCUPANCY = A X 50%		**73**	**12**	**13**	**9**
	2 FOR UP TO 100	WC	2	1	1	1
	1 PER 20	URI	3	1	1	1
	1 PER WC AND 1 PER 5 URINALS	HW	3	2	2	2
	1 PER 10	SH	7	1	1	1
	FEMALE OCCUPANCY = A X 50%		**73**	**12**	**13**	**9**
	1 PER 10 UP TO 50 AND 1 PER ADDITIONAL 10 THEREAFTER	WC	6	1	1	1
	1 + 1 PER 2 WC	HW	3	2	2	2
	1 PER 10	SH	7	1	1	1

(SWIMMING POOLS DESIGN. UPDATED GUIDANCE FOR 2011., 2011) PG 85-86

SANS FROM TABLE 9 - PROVISION OF SANITARY FIXTURES FOR PARTICIPANTS IN SPORT						
	SANITARY APLLIANCES					
	MALE OCCUPANCY = A X 50%		**73**	**12**	**13**	**9**
		WC	4	1	1	1
		URI	5	1	1	1
		HW	5	1	1	1
		SH	5	2	2	2
	FEMALE OCCUPANCY = A X 50%		**73**	**12**	**13**	**9**
		WC	8	2	2	2
		HW	5	1	1	1
		SH	5	2	2	2

JOHANNESBURG WEATHER DATA

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MAXIMUM MONTHLY TEMPERATURE DEGC	25.6	25.1	24.7	21.2	18.9	16	16.6	19.3	22.8	23.7	24.1	25.2
MAXIMUM MONTHLY TEMPERATURE DEGC	14.7	14.2	13.2	10.4	7.3	4.2	4.3	6.3	9.5	11.3	12.7	13.9
AVERASGE PRECIPITATION MM	126	90	91	52	13	8	4	6	28	73	118	105
NUMBER OF WET DAYS	15	12	12	7	4	1	2	2	4	9	13	15

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