



Meadowbank Precinct Stage 1

ESD, BASIX and Thermal Comfort Report

**Prepared on behalf of
Robertson + Marks**

**Prepared by
Ecospecifier Consulting
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TABLE OF CONTENTS

BASIX Summary 2

ESD Summary 3

Thermal Comfort Summary..... 4

Full Thermal Comfort Results..... 5

Introduction

This report summarises the proposed ESD, BASIX and thermal comfort strategies and results for Stage 1 of the Meadowbank Precinct. The report has been prepared by Ecospecifier Consulting on behalf of Robertson + Marks.

Ecospecifier Consulting and Robertson + Marks have worked closely with the other members of the consultant team to propose a high level of sustainability outcomes. In particular, a strong emphasis has been placed on the passive efficiency of the buildings.

BASIX Summary

The Stage 1 development has achieved BASIX scores of 41/40 for water and 27/20. The following energy strategies have helped to achieve these excellent results:

- Solar hot water with 100m² of solar panels
- Hot water pipes (supply risers and ringmain) both use R0.45 insulation (20mm)
- Lifts VVVF type
- PFC used (power factor correction)
- Car park with fluorescent lighting (20% safety lighting and 80% motion sensors)
- Lifts with compact fluoros, connected to call buttons
- Plant rooms with fluoros, switched separately
- Hallways with compact fluoros (and timers and motion sensors)
- Car park ventilation with 1/3 natural air supply and 100% exhaust with carbon monoxide sensors and variable speed fans
- Hallways are predominantly naturally ventilated (whenever adjacent to stairwells with openable windows)
- Wet areas in apartments have compact fluoros and/or LEDs (dedicated fittings)
- Gas cooktops and electric ovens
- Dryers 2*
- Dishwashers 2.5* energy and 3* water
- Ducted exhaust for bathrooms/kitchens/laundries (all switched on/off)
- Air con for units is for living only and is 2* for heating and cooling (new rating system)

Furthermore the following water strategies have helped to achieve the high water score:

- Water tank of 50 kL to collect off all non-trafficable roof (to supply landscaping and 1 car wash bay)
- Toilets – 5*
- Kitchens Taps – 5*
- Bathroom Taps – 5*
- Showers are 3* (between 6 and 7.5 litres/min)
- Landscaping includes 1015m² of plants (of which 40% is indigenous or one-drop)

ESD Summary

Stage 1 will have same ESD strategies applied as the Masterplan itself. These strategies have been summarised in the Report: “Meadowbank Precinct Master Plan - ESD Guidelines and Report”. The ESD strategies will relate to:

1. Community
2. Water
3. Energy
4. Materials
5. Waste
6. Ecosystems
7. Management
8. Emissions
9. Innovation

In particular the final choices for materials, waste management, landscaping, management etc will strive to ensure that all stages within the Meadowbank Precinct will achieve a high proportion of the ESD strategies. The first six categories listed above reflect the six categories of the EnviroDevelopment Assessment Tool. This tool was developed by the Urban Development Institute of Australia (UDIA) and specializes in assessing sustainable communities and precincts.

Importantly, EnviroDevelopment’s rough interpretation of “industry best practice” involves targeting four or more of their six categories. The six categories (Community, Water, Energy, Materials, Waste and Ecosystems) have been combined with some additional ESD categories (namely Management, Emissions and Innovation). The Shepherd’s Bay Masterplan will strive towards these EnviroDevelopment strategies and targets. Furthermore, the BASIX scores (for water and energy) will be used as a guide to performance in water, energy and thermal comfort (and as a benchmark for exceeding mere compliance targets).

Thermal Comfort Summary

The following excellent thermal comfort results have been achieved:

- Average Heating = 18.4 MJ/m2.year
- Average Cooling = 13.9 MJ/m2.year

The heating and cooling loads described above are well below the average values permitted under BASIX (which are 51.0 MJ/m2.year and 45.0 MJ/m2.year, for heating and cooling respectively). The superb results achieved are a testament to the excellent passive heating, passive cooling and natural ventilation of the design. Indeed passive thermal efficiency, materials and building orientation were all influential design considerations.

The following technologies and initiatives were incorporated into the passive thermal design strategy and helped to achieve the excellent thermal comfort results:

- Glazing – Generic Clear Low-E Glazing (with frames this has U-value < 4.7 and SHGC = 0.63 ± 10%)
- Wall insulation – R2 added
- Walls adjacent to car parks – R1.5 added
- Non-trafficable roofs – R3 added above slab
- Metal roofs and Trafficable Terraces – R3 added in ceiling space
- Walls – brick veneer with light or dark colours
- Roof colours medium
- Pergolas are opaque (either solid or angled blades)
- Cross ventilation through large openable windows (including some awning windows for all east and west-facing roof lights to vent excessive summer heat in the penthouses)
- Sub-floor Insulation (R1 or more) used for:

GF-03	LG-13	UB-19
GF-04	LG-14	UB-20
GF-07	LG-15	UB-21
GF-10	LG-16	UB-22
GF-11	LG-17	UB-23
GF-12	LG-18	UB-24
	LG-29	UB-25
	LG-30	UB-26
	LG-31	
	LG-32	

Full Thermal Comfort Results

Unit	Certificate Number	Cond. Area (m2)	Uncond. Area (m2)	Cooling (MJ/m2.yr)	Heating (MJ/m2.yr)	Total (MJ/m2.yr)
1--01	43262169	61.4	0.0	6.1	13.4	19.5
1--02	76644715	50.4	0.0	2.4	9.7	12.1
1--03	53234834	83.5	0.0	9.6	8.5	18.1
1--04	74324171	88.6	0.0	11.0	8.2	19.2
1--05	43251857	75.8	0.0	3.9	10.9	14.8
1--06	66479821	89.3	0.0	16.4	15.4	31.8
1--07	24006933	83.3	0.0	7.4	9.6	17.0
1--08	80114542	56.0	0.0	4.3	12.0	16.3
1--09	14184553	54.9	0.0	4.7	11.6	16.3
1--10	21724325	104.3	0.0	13.9	12.7	26.6
1--11	53471479	72.5	0.0	8.8	7.3	16.1
1--12	98753643	85.9	0.0	11.0	9.0	20.0
1--13	43739166	84.9	0.0	18.8	12.5	31.3
1--14	66264252	89.2	0.0	14.7	7.9	22.6
1--15	65963894	89.6	0.0	9.6	12.6	22.2
1--16	79380575	94.1	0.0	9.2	11.5	20.7
1--17	66264252	88.6	0.0	15.2	7.5	22.7
1--18	43445540	84.9	0.0	18.1	10.9	29.0
1--19	36315312	89.2	0.0	14.3	7.7	22.0
1--20	15256876	89.6	0.0	9.9	12.2	22.1
1--21	36882744	118.4	5.0	24.9	21.6	46.5
1--22	34347725	84.9	0.0	13.7	14.7	28.4
1--23	65683417	90.0	0.0	15.7	9.4	25.1
1--24	21868466	83.6	0.0	23.6	14.6	38.2
1--25	74814792	84.4	0.0	22.7	16.5	39.2
1--26	72134762	100.1	0.0	28.1	18.5	46.6
1--27	87042588	91.7	0.0	2.8	13.6	16.4
1--28	52764007	91.1	0.0	3.5	14.6	18.1
1--29	94988342	90.0	0.0	14.7	10.0	24.7
1--30	24847819	83.6	0.0	26.5	14.0	40.5
1--31	77237543	83.6	0.0	25.3	14.1	39.4
1--32	34092537	90.1	0.0	9.1	8.6	17.7
1--33	87042588	91.7	0.0	3.0	13.5	16.5
1--34	52764007	91.1	0.0	4.4	14.6	19.0
2--01	59539653	56.0	0.0	5.9	11.0	16.9
2--02	83246608	52.6	0.0	5.3	11.1	16.4
2--03	18615841	81.0	0.0	8.6	9.1	17.7
2--04	74858252	85.9	0.0	11.5	8.2	19.7
2--05	42028736	73.5	0.0	3.9	10.8	14.7
2--06	87837249	104.3	0.0	10.3	16.1	26.4

Unit	Certificate Number	Cond. Area (m2)	Uncond. Area (m2)	Cooling (MJ/m2.yr)	Heating (MJ/m2.yr)	Total (MJ/m2.yr)
2--07	24006933	83.3	0.0	7.4	9.6	17.0
2--08	16196717	56.0	0.0	1.1	12.1	13.2
2--09	87704574	54.9	0.0	1.6	11.8	13.4
2--10	21724325	104.3	0.0	13.9	12.7	26.6
2--11	53471479	72.5	0.0	8.8	7.3	16.1
2--12	98753643	85.9	0.0	11.0	8.7	19.7
2--13	57947533	84.9	0.0	16.5	13.5	30.0
2--14	66264252	89.2	0.0	14.7	7.9	22.6
2--15	15256876	89.6	0.0	9.9	12.2	22.1
2--16	79380575	94.1	0.0	9.2	11.5	20.7
2--17	36315312	88.6	0.0	14.3	7.7	22.0
2--18	37016356	84.9	0.0	14.3	11.6	25.9
2--19	16326919	89.2	0.0	13.3	7.7	21.0
2--20	93423331	89.6	0.0	14.3	14.1	28.4
2--21	95807164	118.4	5.0	34.4	27.9	62.3
2--22	37368654	84.9	0.0	10.7	15.5	26.2
2--23	65683417	90.0	0.0	15.7	9.4	25.1
2--24	53259221	83.6	0.0	21.8	16.0	37.8
2--25	36663266	84.4	0.0	22.1	17.1	39.2
2--26	72134762	100.1	0.0	28.1	18.5	46.6
2--27	87042588	91.7	0.0	2.8	13.6	16.4
2--28	52764007	91.1	0.0	3.5	14.6	18.1
2--29	94988342	90.0	0.0	14.7	10.0	24.7
2--30	21868466	83.6	0.0	24.1	15.3	39.4
2--31	24339382	83.6	0.0	23.1	15.6	38.7
2--32	34092537	90.1	0.0	9.1	8.6	17.7
2--33	35189304	91.7	0.0	3.2	13.1	16.3
2--34	52764007	91.1	0.0	4.4	14.6	19.0
3--01	87704574	56.0	0.0	1.5	11.5	13.0
3--02	62134223	52.6	0.0	1.4	12.6	14.0
3--03	53171767	81.0	0.0	8.4	9.2	17.6
3--04	74858252	85.9	0.0	11.5	8.2	19.7
3--05	42028736	73.5	0.0	3.9	10.8	14.7
3--06	39319325	104.3	0.0	9.1	16.2	25.3
3--07	24006933	83.3	0.0	7.4	9.6	17.0
3--08	16196717	56.0	0.0	1.1	12.1	13.2
3--09	87704574	54.9	0.0	1.6	11.8	13.4
3--10	42455386	104.3	0.0	14.6	12.8	27.4
3--11	53471479	72.5	0.0	8.9	7.2	16.1
3--12	98753643	85.9	0.0	11.0	9.0	20.0
3--13	23199371	84.9	0.0	19.8	17.5	37.3
3--14	23655135	89.2	0.0	16.5	8.7	25.2

Unit	Certificate Number	Cond. Area (m2)	Uncond. Area (m2)	Cooling (MJ/m2.yr)	Heating (MJ/m2.yr)	Total (MJ/m2.yr)
3--15	93423331	89.6	0.0	14.3	14.3	28.6
3--16	93423331	94.1	0.0	13.6	13.5	27.1
3--17	63606856	88.6	0.0	23.6	10.3	33.9
3--18	26592033	84.9	0.0	10.5	12.5	23.0
3--19	58395767	89.2	0.0	20.8	10.8	31.6
3--21	22188119	125.7	0.0	47.0	38.4	85.4
3--22	47251234	84.9	0.0	20.0	23.7	43.7
3--23	65683417	90.0	0.0	15.7	9.4	25.1
3--24	85144514	83.6	0.0	20.7	17.1	37.8
3--25	38524586	84.4	0.0	21.4	17.8	39.2
3--26	72134762	100.1	0.0	28.1	18.5	46.6
3--27	35189304	91.7	0.0	3.0	13.3	16.3
3--28	81473395	91.1	0.0	3.7	14.4	18.1
3--29	94988342	90.0	0.0	14.7	10.0	24.7
3--30	53259221	83.6	0.0	22.1	16.3	38.4
3--31	85144514	83.6	0.0	21.3	16.6	37.9
3--32	34092537	90.1	0.0	9.1	8.6	17.7
3--33	35189304	91.7	0.0	3.2	13.1	16.3
3--34	52764007	91.1	0.0	4.4	14.6	19.0
4--01	87704574	56.0	0.0	1.5	11.5	13.0
4--02	62134223	52.6	0.0	1.4	12.6	14.0
4--03	53171767	81.0	0.0	8.4	9.2	17.6
4--04	74858252	85.9	0.0	11.8	8.2	20.0
4--05	42028736	73.5	0.0	3.9	10.8	14.7
4--06	39319325	104.3	0.0	8.5	16.3	24.8
4--07	24006933	83.3	0.0	7.4	9.6	17.0
4--08	16196717	56.0	0.0	1.1	12.1	13.2
4--09	53073323	54.9	0.0	6.1	15.9	22.0
4--10	20343637	104.3	0.0	26.7	15.3	42.0
4--11	50645283	72.5	0.0	20.1	10.1	30.2
4--12	98753643	85.9	0.0	11.0	9.0	20.0
4--13	41785609	102.4	0.0	25.5	20.9	46.4
4--15	67546495	121.5	0.0	26.9	56.9	83.8
4--16	90291672	97.8	5.0	41.4	40.5	81.9
4--18	42516911	84.5	0.0	42.2	29.4	71.6
4--23	65683417	90.0	0.0	15.7	9.4	25.1
4--24	85144514	83.6	0.0	20.8	16.8	37.6
4--25	45527660	84.4	0.0	28.8	26.3	55.1
4--26	82083395	100.1	0.0	42.6	22.3	64.9
4--27	75413535	91.7	0.0	7.7	15.7	23.4
4--28	81473395	91.1	0.0	3.7	14.4	18.1
4--29	94988342	90.0	0.0	14.7	10.0	24.7

Unit	Certificate Number	Cond. Area (m2)	Uncond. Area (m2)	Cooling (MJ/m2.yr)	Heating (MJ/m2.yr)	Total (MJ/m2.yr)
4--30	85144514	83.6	0.0	20.8	17.3	38.1
4--31	74899264	83.6	0.0	20.1	17.2	37.3
4--32	34092537	90.1	0.0	9.1	8.6	17.7
4--33	87042588	91.7	0.0	3.0	13.5	16.5
4--34	52764007	91.1	0.0	4.3	14.7	19.0
5--01	85323856	56.0	0.0	1.7	11.3	13.0
5--02	87704574	52.6	0.0	1.7	12.2	13.9
5--03	18615841	81.0	0.0	8.6	9.1	17.7
5--04	74858252	85.9	0.0	11.5	8.2	19.7
5--05	42028736	73.5	0.0	3.9	10.8	14.7
5--06	39319325	104.3	0.0	9.0	15.8	24.8
5--07	24006933	83.3	0.0	7.4	9.6	17.0
5--08	16196717	56.0	0.0	1.4	12.2	13.6
5--09	27476466	90.5	5.3	35.4	24.2	59.6
5--12	33772960	85.9	0.0	10.6	10.1	20.7
5--23	40764989	90.0	0.0	19.3	16.2	35.5
5--24	51589939	83.6	0.0	34.2	38.6	72.8
5--28	36714648	137.9	0.0	31.3	37.3	68.6
5--29	94988342	90.0	0.0	14.7	10.0	24.7
5--30	23199371	83.6	0.0	20.4	17.5	37.9
5--31	74899264	83.6	0.0	19.7	17.3	37.0
5--32	24006933	90.1	0.0	6.9	9.6	16.5
5--33	87042588	91.7	0.0	3.0	13.5	16.5
5--34	52764007	91.1	0.0	4.3	14.7	19.0
6--01	85323856	56.0	0.0	1.7	11.3	13.0
6--02	87704574	52.6	0.0	1.7	12.2	13.9
6--03	34623634	81.0	0.0	14.9	11.0	25.9
6--04	74858252	85.9	0.0	11.5	8.2	19.7
6--05	42028736	73.5	0.0	3.9	10.8	14.7
6--06	39319325	104.3	0.0	9.0	15.8	24.8
6--07	58892079	83.3	0.0	15.7	12.0	27.7
6--08	75382844	56.0	0.0	6.7	16.6	23.3
6--09	71904551	90.5	5.3	49.9	41.5	91.4
6--12	71184713	85.9	0.0	23.1	25.1	48.2
6--29	48138757	90.0	0.0	24.7	15.3	40.0
6--30	41317404	83.6	0.0	32.8	22.6	55.4
6--31	42044511	83.6	0.0	34.4	35.5	69.9
6--32	85829971	110.9	0.0	39.3	33.2	72.5
6--33	57165972	91.7	0.0	13.9	19.0	32.9
6--34	22427037	91.1	0.0	13.5	20.5	34.0
7--01	16196717	56.0	0.0	1.3	11.9	13.2
7--02	62134223	52.6	0.0	1.4	12.6	14.0

Unit	Certificate Number	Cond. Area (m2)	Uncond. Area (m2)	Cooling (MJ/m2.yr)	Heating (MJ/m2.yr)	Total (MJ/m2.yr)
7--03	33138494	120.9	0.0	19.5	14.7	34.2
7--04	24172051	85.9	0.0	15.1	11.4	26.5
7--05	86842526	126.1	0.0	20.0	15.7	35.7
7--06	39319325	104.3	0.0	9.0	15.8	24.8
8--01	53073323	56.0	0.0	6.2	16.2	22.4
8--02	75382844	52.6	0.0	7.1	16.6	23.7
8--03	96422748	120.9	0.0	33.3	31.9	65.2
8--04	54424744	85.9	0.0	21.9	17.0	38.9
8--05	97566732	126.1	0.0	33.4	23.8	57.2
8--06	52444087	104.3	0.0	19.2	22.2	41.4
GF-01	25075205	57.7	0.0	53.0	10.4	63.4
GF-02	37247766	54.2	0.0	44.9	9.1	54.0
GF-03	26658965	83.5	0.0	27.0	7.8	34.8
GF-04	70386810	88.6	0.0	31.6	7.3	38.9
GF-05	42347761	67.7	0.0	63.9	9.6	73.5
GF-06	22246661	107.5	0.0	60.1	13.6	73.7
GF-07	33205587	83.3	0.0	31.5	9.4	40.9
GF-08	58023575	49.9	0.0	38.7	10.7	49.4
GF-09	51579693	58.6	0.0	47.9	14.3	62.2
GF-10	92465916	86.3	0.0	36.5	14.5	51.0
GF-11	35427437	72.5	0.0	30.2	7.0	37.2
GF-12	41023348	85.9	0.0	31.5	8.2	39.7
GF-13	87244275	84.9	0.0	20.2	12.1	32.3
GF-14	66264252	89.2	0.0	14.7	7.9	22.6
GF-15	11246111	89.6	0.0	17.6	11.5	29.1
GF-16	79380575	94.1	0.0	9.2	11.5	20.7
GF-17	72964848	88.6	0.0	15.5	7.6	23.1
GF-18	25527396	84.9	0.0	20.8	10.1	30.9
GF-19	66264252	89.2	0.0	14.7	7.6	22.3
GF-20	15256876	89.6	0.0	9.9	12.2	22.1
GF-21	11210424	118.4	5.0	27.2	21.4	48.6
GF-22	21071713	84.9	0.0	17.1	13.2	30.3
GF-23	65683417	90.0	0.0	15.7	9.4	25.1
GF-24	21868466	83.6	0.0	24.1	14.7	38.8
GF-25	53259221	84.4	0.0	22.3	16.3	38.6
GF-26	72134762	100.1	0.0	28.1	18.5	46.6
GF-27	35189304	91.7	0.0	3.0	13.3	16.3
GF-28	81473395	91.1	0.0	3.7	14.4	18.1
GF-29	29971701	90.0	0.0	21.6	10.0	31.6
GF-30	21759877	83.6	0.0	28.1	12.8	40.9
GF-31	28987161	83.6	0.0	26.8	13.4	40.2
GF-32	34092537	90.1	0.0	9.1	8.6	17.7
GF-33	87042588	91.7	0.0	3.0	13.5	16.5
GF-34	75846547	91.1	0.0	9.3	14.1	23.4

Unit	Certificate Number	Cond. Area (m2)	Uncond. Area (m2)	Cooling (MJ/m2.yr)	Heating (MJ/m2.yr)	Total (MJ/m2.yr)
LG-13	51182528	84.9	0.0	41.3	10.2	51.5
LG-14	17595622	89.2	0.0	43.2	7.6	50.8
LG-15	87647588	58.0	0.0	33.5	9.9	43.4
LG-16	13421358	94.1	0.0	27.8	10.8	38.6
LG-17	84353926	88.6	0.0	37.2	7.1	44.3
LG-18	25345170	84.9	0.0	42.0	10.3	52.3
LG-19	31328748	89.2	0.0	14.8	7.4	22.2
LG-20	49840682	89.6	0.0	18.3	11.3	29.6
LG-21	38246814	118.4	5.0	28.4	21.0	49.4
LG-22	43739166	84.9	0.0	18.9	13.0	31.9
LG-23	65683417	90.0	0.0	15.7	9.4	25.1
LG-24	77237543	83.6	0.0	24.8	13.9	38.7
LG-25	24339382	84.4	0.0	22.8	15.7	38.5
LG-26	88476721	100.1	0.0	28.6	18.1	46.7
LG-27	35189304	91.7	0.0	3.0	13.3	16.3
LG-28	67706473	91.1	0.0	7.3	13.0	20.3
LG-29	46168467	90.0	0.0	42.6	9.7	52.3
LG-30	11164404	83.6	0.0	50.1	11.8	61.9
LG-31	11164404	83.6	0.0	49.2	12.1	61.3
LG-32	48375676	90.1	0.0	28.1	7.8	35.9
LG-33	91656645	91.7	0.0	54.0	10.9	64.9
LG-34	58826089	58.0	0.0	58.6	10.4	69.0
UB-19	17595622	89.2	0.0	43.3	7.7	51.0
UB-20	87647588	58.0	0.0	33.5	9.9	43.4
UB-21	33281532	118.4	5.0	47.5	21.9	69.4
UB-22	60658035	84.9	0.0	42.9	11.1	54.0
UB-23	68320071	90.0	0.0	44.1	9.0	53.1
UB-24	66281722	83.6	0.0	46.6	11.8	58.4
UB-25	43541727	84.4	0.0	44.0	14.1	58.1
UB-26	76862845	100.1	0.0	44.4	18.2	62.6
UB-27	91656645	91.7	0.0	53.7	10.7	64.4
UB-28	58826089	58.0	0.0	58.6	10.4	69.0
AVERAGE					18.4	13.9

BASIX[®]Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 331309M_02

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2009 published by the Department of Planning. This document is available at www.basix.nsw.gov.au

Director-General

Date of issue: Wednesday, 17 November 2010



Project summary		
Project name	Stage 1 - 41-45 Belmore Street Meado_02	
Street address	41-45 Belmore Street Meadowbank 2114	
Local Government Area	Ryde City Council	
Plan type and plan number	deposited 1072555	
Lot no.	1	
Section no.	-	
No. of unit buildings	1	
No. of units in unit buildings	242	
No. of attached dwelling houses	0	
No. of separate dwelling houses	0	
Project score		
Water	✔ 41	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 27	Target 20

Certificate Prepared by (please complete before submitting to Council or PCA)

Name / Company Name: ecospecifier Pty Ltd

ABN (if applicable): ABN 83 124 037 841

Description of project

Project address

Project name	Stage 1 - 41-45 Belmore Street Meado_02
Street address	41-45 Belmore Street Meadowbank 2114
Local Government Area	Ryde City Council
Plan type and plan number	deposited 1072555
Lot no.	1
Section no.	-

Project type

No. of unit buildings	1
No. of units in unit buildings	242
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Site details

Site area (m²)	7284
Roof area (m²)	3025
Non-residential floor area (m²)	0
Residential car spaces	386
Non-residential car spaces	0

Common area landscape

Common area lawn (m²)	475
Common area garden (m²)	1015
Area of indigenous or low water use species (m²)	406

Assessor details

Assessor number	20047
Certificate number	43262169
Climate zone	56

Project score

Water	✓ 41	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 27	Target 20

Description of project

The tables below describe the dwellings and common areas within the project

Unit building - Building1, 242 dwellings, 24 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1--01	1	59.0	0.0	0.0	0.0
1--05	1	73.0	0.0	0.0	0.0
1--09	1	54.0	0.0	0.0	0.0
1--13	2	84.0	0.0	0.0	0.0
1--17	2	88.0	0.0	0.0	0.0
1--21	3	118.0	5.0	0.0	0.0
1--25	2	84.0	0.0	0.0	0.0
1--29	2	90.0	0.0	0.0	0.0
1--33	2	91.0	0.0	0.0	0.0
2--03	2	81.0	0.0	0.0	0.0
2--07	2	83.0	0.0	0.0	0.0
2--11	1	72.0	0.0	0.0	0.0
2--15	2	89.0	0.0	0.0	0.0
2--19	2	89.0	0.0	0.0	0.0
2--23	2	90.0	0.0	0.0	0.0
2--27	2	91.0	0.0	0.0	0.0
2--31	2	83.0	0.0	0.0	0.0
3--01	1	56.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1--02	1	48.0	0.0	0.0	0.0
1--06	2	86.0	0.0	0.0	0.0
1--10	2	104.0	0.0	0.0	0.0
1--14	2	89.0	0.0	0.0	0.0
1--18	2	84.0	0.0	0.0	0.0
1--22	2	84.0	0.0	0.0	0.0
1--26	2	100.0	0.0	0.0	0.0
1--30	2	83.0	0.0	0.0	0.0
1--34	2	91.0	0.0	0.0	0.0
2--04	2	85.0	0.0	0.0	0.0
2--08	1	56.0	0.0	0.0	0.0
2--12	2	85.0	0.0	0.0	0.0
2--16	2	94.0	0.0	0.0	0.0
2--20	2	89.0	0.0	0.0	0.0
2--24	2	83.0	0.0	0.0	0.0
2--28	2	91.0	0.0	0.0	0.0
2--32	2	90.0	0.0	0.0	0.0
3--02	1	52.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1--03	2	81.0	0.0	0.0	0.0
1--07	2	83.0	0.0	0.0	0.0
1--11	1	72.0	0.0	0.0	0.0
1--15	2	89.0	0.0	0.0	0.0
1--19	2	89.0	0.0	0.0	0.0
1--23	2	90.0	0.0	0.0	0.0
1--27	2	91.0	0.0	0.0	0.0
1--31	2	83.0	0.0	0.0	0.0
2--01	1	56.0	0.0	0.0	0.0
2--05	1	73.0	0.0	0.0	0.0
2--09	1	54.0	0.0	0.0	0.0
2--13	2	84.0	0.0	0.0	0.0
2--17	2	88.0	0.0	0.0	0.0
2--21	3	118.0	5.0	0.0	0.0
2--25	2	84.0	0.0	0.0	0.0
2--29	2	90.0	0.0	0.0	0.0
2--33	2	91.0	0.0	0.0	0.0
3--03	2	81.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
1--04	2	85.0	0.0	0.0	0.0
1--08	1	56.0	0.0	0.0	0.0
1--12	2	85.0	0.0	0.0	0.0
1--16	2	94.0	0.0	0.0	0.0
1--20	2	89.0	0.0	0.0	0.0
1--24	2	83.0	0.0	0.0	0.0
1--28	2	91.0	0.0	0.0	0.0
1--32	2	90.0	0.0	0.0	0.0
2--02	1	52.0	0.0	0.0	0.0
2--06	3	104.0	0.0	0.0	0.0
2--10	2	104.0	0.0	0.0	0.0
2--14	2	89.0	0.0	0.0	0.0
2--18	2	84.0	0.0	0.0	0.0
2--22	2	84.0	0.0	0.0	0.0
2--26	2	100.0	0.0	0.0	0.0
2--30	2	83.0	0.0	0.0	0.0
2--34	2	91.0	0.0	0.0	0.0
3--04	2	85.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
3--05	1	73.0	0.0	0.0	0.0
3--09	1	54.0	0.0	0.0	0.0
3--13	2	84.0	0.0	0.0	0.0
3--17	2	88.0	0.0	0.0	0.0
3--22	2	84.0	0.0	0.0	0.0
3--26	2	100.0	0.0	0.0	0.0
3--30	2	83.0	0.0	0.0	0.0
3--34	2	91.0	0.0	0.0	0.0
4--04	2	85.0	0.0	0.0	0.0
4--08	1	56.0	0.0	0.0	0.0
4--12	2	85.0	0.0	0.0	0.0
4--18	2	84.0	0.0	0.0	0.0
4--26	2	100.0	0.0	0.0	0.0
4--30	2	83.0	0.0	0.0	0.0
4--34	2	91.0	0.0	0.0	0.0
5--04	2	85.0	0.0	0.0	0.0
5--08	1	56.0	0.0	0.0	0.0
5--24	2	83.0	0.0	0.0	0.0
5--31	2	83.0	0.0	0.0	0.0
6--01	1	56.0	0.0	0.0	0.0
6--05	1	73.0	0.0	0.0	0.0
6--09	2	90.0	5.0	0.0	0.0
6--31	2	83.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
3--06	3	104.0	0.0	0.0	0.0
3--10	2	104.0	0.0	0.0	0.0
3--14	2	89.0	0.0	0.0	0.0
3--18	2	84.0	0.0	0.0	0.0
3--23	2	90.0	0.0	0.0	0.0
3--27	2	91.0	0.0	0.0	0.0
3--31	2	83.0	0.0	0.0	0.0
4--01	1	56.0	0.0	0.0	0.0
4--05	1	73.0	0.0	0.0	0.0
4--09	1	54.0	0.0	0.0	0.0
4--13	3	102.0	0.0	0.0	0.0
4--23	2	90.0	0.0	0.0	0.0
4--27	2	91.0	0.0	0.0	0.0
4--31	2	83.0	0.0	0.0	0.0
5--01	1	56.0	0.0	0.0	0.0
5--05	1	73.0	0.0	0.0	0.0
5--09	2	90.0	5.0	0.0	0.0
5--28	3	137.0	0.0	0.0	0.0
5--32	2	90.0	0.0	0.0	0.0
6--02	1	52.0	0.0	0.0	0.0
6--06	3	104.0	0.0	0.0	0.0
6--12	2	85.0	0.0	0.0	0.0
6--32	3	110.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
3--07	2	83.0	0.0	0.0	0.0
3--11	1	72.0	0.0	0.0	0.0
3--15	2	89.0	0.0	0.0	0.0
3--19	2	89.0	0.0	0.0	0.0
3--24	2	83.0	0.0	0.0	0.0
3--28	2	91.0	0.0	0.0	0.0
3--32	2	90.0	0.0	0.0	0.0
4--02	1	52.0	0.0	0.0	0.0
4--06	3	104.0	0.0	0.0	0.0
4--10	2	104.0	0.0	0.0	0.0
4--15	3	121.0	0.0	0.0	0.0
4--24	2	83.0	0.0	0.0	0.0
4--28	2	91.0	0.0	0.0	0.0
4--32	2	90.0	0.0	0.0	0.0
5--02	1	52.0	0.0	0.0	0.0
5--06	3	104.0	0.0	0.0	0.0
5--12	2	85.0	0.0	0.0	0.0
5--29	2	90.0	0.0	0.0	0.0
5--33	2	91.0	0.0	0.0	0.0
6--03	2	81.0	0.0	0.0	0.0
6--07	2	83.0	0.0	0.0	0.0
6--29	2	90.0	0.0	0.0	0.0
6--33	2	91.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
3--08	1	56.0	0.0	0.0	0.0
3--12	2	85.0	0.0	0.0	0.0
3--16	2	94.0	0.0	0.0	0.0
3--21	3	125.0	0.0	0.0	0.0
3--25	2	84.0	0.0	0.0	0.0
3--29	2	90.0	0.0	0.0	0.0
3--33	2	91.0	0.0	0.0	0.0
4--03	2	81.0	0.0	0.0	0.0
4--07	2	83.0	0.0	0.0	0.0
4--11	1	72.0	0.0	0.0	0.0
4--16	2	97.0	5.0	0.0	0.0
4--25	2	84.0	0.0	0.0	0.0
4--29	2	90.0	0.0	0.0	0.0
4--33	2	91.0	0.0	0.0	0.0
5--03	2	81.0	0.0	0.0	0.0
5--07	2	83.0	0.0	0.0	0.0
5--23	2	90.0	0.0	0.0	0.0
5--30	2	83.0	0.0	0.0	0.0
5--34	2	91.0	0.0	0.0	0.0
6--04	2	85.0	0.0	0.0	0.0
6--08	1	56.0	0.0	0.0	0.0
6--30	2	83.0	0.0	0.0	0.0
6--34	2	91.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
7--01	1	56.0	0.0	0.0	0.0
7--05	3	126.0	0.0	0.0	0.0
8--03	3	120.0	0.0	0.0	0.0
GF-01	1	56.0	0.0	0.0	0.0
GF-05	1	66.0	0.0	0.0	0.0
GF-09	1	58.0	0.0	0.0	0.0
GF-13	2	84.0	0.0	0.0	0.0
GF-17	2	88.0	0.0	0.0	0.0
GF-21	3	118.0	5.0	0.0	0.0
GF-25	2	84.0	0.0	0.0	0.0
GF-29	2	90.0	0.0	0.0	0.0
GF-33	2	91.0	0.0	0.0	0.0
LG-15	1	58.0	0.0	0.0	0.0
LG-19	2	89.0	0.0	0.0	0.0
LG-23	2	90.0	0.0	0.0	0.0
LG-27	2	91.0	0.0	0.0	0.0
LG-31	2	83.0	0.0	0.0	0.0
UB-19	2	89.0	0.0	0.0	0.0
UB-23	2	90.0	0.0	0.0	0.0
UB-27	2	91.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
7--02	1	52.0	0.0	0.0	0.0
7--06	3	104.0	0.0	0.0	0.0
8--04	2	85.0	0.0	0.0	0.0
GF-02	1	52.0	0.0	0.0	0.0
GF-06	3	104.0	0.0	0.0	0.0
GF-10	2	86.0	0.0	0.0	0.0
GF-14	2	89.0	0.0	0.0	0.0
GF-18	2	84.0	0.0	0.0	0.0
GF-22	2	84.0	0.0	0.0	0.0
GF-26	2	100.0	0.0	0.0	0.0
GF-30	2	83.0	0.0	0.0	0.0
GF-34	2	91.0	0.0	0.0	0.0
LG-16	2	94.0	0.0	0.0	0.0
LG-20	2	89.0	0.0	0.0	0.0
LG-24	2	83.0	0.0	0.0	0.0
LG-28	2	91.0	0.0	0.0	0.0
LG-32	2	90.0	0.0	0.0	0.0
UB-20	1	58.0	0.0	0.0	0.0
UB-24	2	83.0	0.0	0.0	0.0
UB-28	1	58.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
7--03	3	120.0	0.0	0.0	0.0
8--01	1	56.0	0.0	0.0	0.0
8--05	3	126.0	0.0	0.0	0.0
GF-03	2	81.0	0.0	0.0	0.0
GF-07	2	83.0	0.0	0.0	0.0
GF-11	1	72.0	0.0	0.0	0.0
GF-15	2	89.0	0.0	0.0	0.0
GF-19	2	89.0	0.0	0.0	0.0
GF-23	2	90.0	0.0	0.0	0.0
GF-27	2	91.0	0.0	0.0	0.0
GF-31	2	83.0	0.0	0.0	0.0
LG-13	2	84.0	0.0	0.0	0.0
LG-17	2	88.0	0.0	0.0	0.0
LG-21	3	118.0	5.0	0.0	0.0
LG-25	2	84.0	0.0	0.0	0.0
LG-29	2	90.0	0.0	0.0	0.0
LG-33	2	91.0	0.0	0.0	0.0
UB-21	3	118.0	5.0	0.0	0.0
UB-25	2	84.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
7--04	2	85.0	0.0	0.0	0.0
8--02	1	52.0	0.0	0.0	0.0
8--06	3	104.0	0.0	0.0	0.0
GF-04	2	86.0	0.0	0.0	0.0
GF-08	1	49.0	0.0	0.0	0.0
GF-12	2	85.0	0.0	0.0	0.0
GF-16	2	94.0	0.0	0.0	0.0
GF-20	2	89.0	0.0	0.0	0.0
GF-24	2	83.0	0.0	0.0	0.0
GF-28	2	91.0	0.0	0.0	0.0
GF-32	2	90.0	0.0	0.0	0.0
LG-14	2	89.0	0.0	0.0	0.0
LG-18	2	84.0	0.0	0.0	0.0
LG-22	2	84.0	0.0	0.0	0.0
LG-26	2	100.0	0.0	0.0	0.0
LG-30	2	83.0	0.0	0.0	0.0
LG-34	1	58.0	0.0	0.0	0.0
UB-22	2	84.0	0.0	0.0	0.0
UB-26	2	100.0	0.0	0.0	0.0

Description of project

The tables below describe the dwellings and common areas within the project

Common areas of unit building - Building1

Common area	Floor area (m²)
Car park (motion sensor + natural vent)	2853
Car park (no sensor + mech vent)	1427
Lift car (No. 3)	-
Lift car (No. 6)	-
Switch Room	21

Common area	Floor area (m²)
Car park (motion sensor + mech vent)	5707
Lift car (No. 1)	-
Lift car (No. 4)	-
Garbage rooms	114
Hallways Natural Vent	1283

Common area	Floor area (m²)
Car park (no sensor + natural vent)	713
Lift car (No. 2)	-
Lift car (No. 5)	-
Plant rooms	128
Hallways Mechanical Supply	416

Schedule of BASIX commitments

1. Commitments for unit building - Building1

(a) Dwellings

- (i) Water
- (ii) Energy
- (iii) Thermal Comfort

(b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

2. Commitments for attached dwelling houses

3. Commitments for separate dwelling houses

4. Commitments for common areas and central systems/facilities for the development (non-building specific)

- (i) Water
- (ii) Energy

Schedule of BASIX commitments

The commitments set out below regulate how the proposed development is to be carried out. It is a condition of any development consent granted, or complying development certificate issued, for the proposed development, that BASIX commitments be complied with.

1. Commitments for unit building - Building1

(a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✓	✓	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✓	✓
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✓	✓
(e) The applicant must install:			
(aa) a hot water diversion system to all showers, kitchen sinks and all basins in the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below; and		✓	✓
(bb) a separate diversion tank (or tanks) connected to the hot water diversion systems of at least 100 litres. The applicant must connect the hot water diversion tank to all toilets in the dwelling.		✓	✓
(e) The applicant must not install a private swimming pool or spa for the dwelling, with a volume exceeding that specified for it in the table below.	✓	✓	
(f) If specified in the table, that pool or spa (or both) must have a pool cover or shading (or both).		✓	
(g) The pool or spa must be located as specified in the table.	✓	✓	
(h) The applicant must install, for the dwelling, each alternative water supply system, with the specified size, listed for that dwelling in the table below. Each system must be configured to collect run-off from the areas specified (excluding any area which supplies any other alternative water supply system), and to divert overflow as specified. Each system must be connected as specified.	✓	✓	✓

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 6 but <= 7.5 L/min)	5 star	5 star	5 star	no	-	3 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<p>(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:</p> <p>(aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and</p> <p>(bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.</p>		<p>✓</p> <p>✓</p>	
<p>(h) The applicant must install in the dwelling:</p> <p>(aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;</p> <p>(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and</p> <p>(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.</p>		<p>✓</p> <p>✓</p> <p>✓</p>	✓
<p>(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".</p>		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1--21, 2--21, 4--16, 5--09, 6--09, GF-21, LG-21, UB-21	1-phase airconditioning 2 Star (new rating) (zoned)	(zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	(zoned)	0	0	no	yes (dedicated)	yes (dedicated)	no	1	yes

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1--01, 1--02, 1--03, 1--04, 1--05, 1--06, 1--07, 1--08, 1--09, 1--10, 1--11, 1--12, 1--13, 1--14, 1--15, 1--16, 1--17, 1--18, 1--19, 1--20, 1--22, 1--23, 1--24, 1--25, 1--26, 1--27, 1--28, 1--29, 1--30, 1--31, 1--32, 1--33, 1--34, 2--01, 2--02, 2--03, 2--04, 2--05, 2--06,	1-phase airconditioning 2 Star (new rating) (zoned)	(zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	(zoned)	0	0	no	yes (dedicated)	yes (dedicated)	no	0	yes

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
2--07, 2--08, 2--09, 2--10, 2--11, 2--12, 2--13, 2--14, 2--15, 2--16, 2--17, 2--18, 2--19, 2--20, 2--22, 2--23, 2--24, 2--25, 2--26, 2--27, 2--28, 2--29, 2--30, 2--31, 2--32, 2--33, 2--34, 3--01, 3--02, 3--03, 3--04, 3--05, 3--06, 3--07, 3--08, 3--09, 3--10, 3--11, 3--12,												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
3--13, 3--14, 3--15, 3--16, 3--17, 3--18, 3--19, 3--21, 3--22, 3--23, 3--24, 3--25, 3--26, 3--27, 3--28, 3--29, 3--30, 3--31, 3--32, 3--33, 3--34, 4--01, 4--02, 4--03, 4--04, 4--05, 4--06, 4--07, 4--08, 4--09, 4--10, 4--11, 4--12, 4--13, 4--15, 4--18, 4--23, 4--24, 4--25,												

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
4--26, 4--27, 4--28, 4--29, 4--30, 4--31, 4--32, 4--33, 4--34, 5--01, 5--02, 5--03, 5--04, 5--05, 5--06, 5--07, 5--08, 5--12, 5--23, 5--24, 5--28, 5--29, 5--30, 5--31, 5--32, 5--33, 5--34, 6--01, 6--02, 6--03, 6--04, 6--05, 6--06, 6--07, 6--08, 6--12, 6--29, 6--30, 6--31,												

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
6--32, 6--33, 6--34, 7--01, 7--02, 7--03, 7--04, 7--05, 7--06, 8--01, 8--02, 8--03, 8--04, 8--05, 8--06, GF-01, GF-02, GF-03, GF-04, GF-05, GF-06, GF-07, GF-08, GF-09, GF-10, GF-11, GF-12, GF-13, GF-14, GF-15, GF-16, GF-17, GF-18, GF-19, GF-20, GF-22, GF-23, GF-24, GF-25,												

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
GF-26, GF-27, GF-28, GF-29, GF-30, GF-31, GF-32, GF-33, GF-34, LG-13, LG-14, LG-15, LG-16, LG-17, LG-18, LG-19, LG-20, LG-22, LG-23, LG-24, LG-25, LG-26, LG-27, LG-28, LG-29, LG-30, LG-31, LG-32, LG-33, LG-34, UB-19, UB-20, UB-22, UB-23, UB-24, UB-25, UB-26, UB-27, UB-28												

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	no	2.5 star	-	2 star	no	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.			
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✓	✓	✓
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✓	✓	✓

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
1--01	6.1	13.4
1--02	2.4	9.7
1--03	9.6	8.5
1--04	11	8.2
1--05	3.9	10.9
1--06	16.4	15.4
1--08	4.3	12.0
1--09	4.7	11.6
1--13	18.8	12.5
1--15	9.6	12.6
1--17	15.2	7.5
1--18	18.1	10.9
1--21	24.9	21.6
1--22	13.7	14.7
1--24	23.6	14.6
1--25	22.7	16.5
1--30	26.5	14.0
1--31	25.3	14.1
2--01	5.9	11.0
2--02	5.3	11.1
2--06	10.3	16.1
2--12	11.0	8.7
2--13	16.5	13.5
2--18	14.3	11.6
2--19	13.3	7.7
2--20	14.3	14.1
2--21	34.4	27.9

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
2--22	10.7	15.5
2--24	21.8	16.0
2--25	22.1	17.1
2--30	24.1	15.3
2--31	23.1	15.6
3--06	9.1	16.2
3--10	14.6	12.8
3--11	8.9	7.2
3--13	19.8	17.5
3--14	16.5	8.7
3--15	14.3	14.3
3--16	13.6	13.5
3--17	23.6	10.3
3--18	10.5	12.5
3--19	20.8	10.8
3--21	47.0	38.4
3--22	20.0	23.7
3--24	20.7	17.1
3--25	21.4	17.8
3--30	22.1	16.3
3--31	21.3	16.6
4--04	11.8	8.2
4--06	8.5	16.3
4--09	6.1	15.9
4--10	26.7	15.3
4--11	20.1	10.1
4--13	25.5	20.9

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
4--15	26.9	56.9
4--16	41.4	40.5
4--18	42.2	29.4
4--24	20.8	16.8
4--25	28.8	26.3
4--26	42.6	22.3
4--27	7.7	15.7
4--30	20.8	17.3
4--31	20.1	17.2
5--08	1.4	12.2
5--09	35.4	24.2
5--12	10.6	10.1
5--23	19.3	16.2
5--24	34.2	38.6
5--28	31.3	37.3
5--30	20.4	17.5
5--31	19.7	17.3
5--32	6.9	9.6
6--03	14.9	11.0
6--07	15.7	12.0
6--08	6.7	16.6
6--09	49.9	41.5
6--12	23.1	25.1
6--29	24.7	15.3
6--30	32.8	22.6
6--31	34.4	35.5
6--32	39.3	33.2

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
6--33	13.9	19.0
6--34	13.5	20.5
7--01	1.3	11.9
7--03	19.5	14.7
7--04	15.1	11.4
7--05	20.0	15.7
8--01	6.2	16.2
8--02	7.1	16.6
8--03	33.3	31.9
8--04	21.9	17.0
8--05	33.4	23.8
8--06	19.2	22.2
GF-01	53.0	10.4
GF-02	44.9	9.1
GF-03	27	7.8
GF-04	31.6	7.3
GF-05	63.9	9.6
GF-06	60.1	13.6
GF-07	31.5	9.4
GF-08	38.7	10.7
GF-09	47.9	14.3
GF-10	36.5	14.5
GF-11	30.2	7.0
GF-12	31.5	8.2
GF-13	20.2	12.1
GF-15	17.6	11.5
GF-17	15.5	7.6

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
GF-18	20.8	10.1
GF-19	14.7	7.6
GF-21	27.2	21.4
GF-22	17.1	13.2
GF-24	24.1	14.7
GF-25	22.3	16.3
GF-29	21.6	10.0
GF-30	28.1	12.8
GF-31	26.8	13.4
GF-34	9.3	14.1
LG-13	41.3	10.2
LG-14	43.2	7.6
LG-16	27.8	10.8
LG-17	37.2	7.1
LG-18	42.0	10.3
LG-19	14.8	7.4
LG-20	18.3	11.3
LG-21	28.4	21.0
LG-22	18.9	13.0
LG-24	24.8	13.9
LG-25	22.8	15.7
LG-26	28.6	18.1
LG-28	7.3	13.0
LG-29	42.6	9.7
LG-30	50.1	11.8
LG-31	49.2	12.1
LG-32	28.1	7.8

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
LG-33	54.0	10.9
UB-19	43.3	7.7
UB-21	47.5	21.9
UB-22	42.9	11.1
UB-23	44.1	9.0
UB-24	46.6	11.8
UB-25	44.0	14.1
UB-26	44.4	18.2
UB-27	53.7	10.7
1--10, 2--10	13.9	12.7
1--11, 2--11	8.8	7.3
1--19, 2--17	14.3	7.7
1--27, 2--27	2.8	13.6
1--28, 2--28	3.5	14.6
2--03, 5--03	8.6	9.1
2--09, 3--09	1.6	11.8
2--33, 3--33	3.2	13.1
3--01, 4--01	1.5	11.5
3--03, 4--03	8.4	9.2
4--34, 5--34	4.3	14.7
5--01, 6--01	1.7	11.3
5--02, 6--02	1.7	12.2
LG-15, UB-20	33.5	9.9
LG-34, UB-28	58.6	10.4
1--12, 3--12, 4--12	11.0	9.0
1--14, 2--14, GF-14	14.7	7.9
1--16, 2--16, GF-16	9.2	11.5

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
1--20, 2--15, GF-20	9.9	12.2
1--34, 2--34, 3--34	4.4	14.6
2--08, 3--08, 4--08	1.1	12.1
3--02, 4--02, 7--02	1.4	12.6
3--27, GF-27, LG-27	3.0	13.3
3--28, 4--28, GF-28	3.7	14.4
5--06, 6--06, 7--06	9.0	15.8
1--26, 2--26, 3--26, GF-26	28.1	18.5
1--33, 4--33, 5--33, GF-33	3.0	13.5
2--04, 3--04, 5--04, 6--04	11.5	8.2
1--07, 2--07, 3--07, 4--07, 5--07	7.4	9.6
1--29, 2--29, 3--29, 4--29, 5--29	14.7	10.0
1--32, 2--32, 3--32, 4--32, GF-32	9.1	8.6
2--05, 3--05, 4--05, 5--05, 6--05	3.9	10.8
All other dwellings	15.7	9.4

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	5 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	50000	To collect run-off from at least: - 3025 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 1490 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park (motion sensor + natural vent)	ventilation exhaust only	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Car park (motion sensor + mech vent)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	motion sensors	Yes
Car park (no sensor + natural vent)	ventilation exhaust only	carbon monoxide monitor + VSD fan	fluorescent	none	No
Car park (no sensor + mech vent)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	none	No
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	Yes
Lift car (No. 2)	-	-	compact fluorescent	connected to lift call button	Yes
Lift car (No. 3)	-	-	compact fluorescent	connected to lift call button	Yes
Lift car (No. 4)	-	-	compact fluorescent	connected to lift call button	Yes
Lift car (No. 5)	-	-	compact fluorescent	connected to lift call button	Yes
Lift car (No. 6)	-	-	compact fluorescent	connected to lift call button	Yes
Garbage rooms	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant rooms	ventilation (supply + exhaust)	none ie. continuous	fluorescent	manual on / manual off	No
Switch Room	ventilation supply only	none ie. continuous	fluorescent	manual on / manual off	No

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Hallways Natural Vent	no mechanical ventilation	-	compact fluorescent	time clock and motion sensors	Yes
Hallways Mechanical Supply	ventilation supply only	none ie. continuous	compact fluorescent	time clock and motion sensors	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	solar - gas boosted	Solar collector area (minimum, in square metres): 100 Piping insulation (ringmain & supply risers): (b) Piping internal to building: R0.45 (~20 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 7
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 9
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 10
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 10
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 12

4. Commitments for common areas and central systems/facilities for the development (non-building specific)

(b) Common areas and central systems/facilities

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a showerhead, toilet, tap or clothes washer into a common area, then that item must meet the specifications listed for it in the table.		✓	✓
(b) The applicant must install (or ensure that the development is serviced by) the alternative water supply system(s) specified in the "Central systems" column of the table below. In each case, the system must be sized, be configured, and be connected, as specified in the table.	✓	✓	✓
(c) A swimming pool or spa listed in the table must not have a volume (in kLs) greater than that specified for the pool or spa in the table.	✓	✓	
(d) A pool or spa listed in the table must have a cover or shading if specified for the pool or spa in the table.		✓	
(e) The applicant must install each fire sprinkler system listed in the table so that the system is configured as specified in the table.		✓	✓
(f) The applicant must ensure that the central cooling system for a cooling tower is configured as specified in the table.		✓	✓

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	5 star	5 star	no common laundry facility

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓
(b) In carrying out the development, the applicant must install, as the "primary type of artificial lighting" for each common area specified in the table below, the lighting specified for that common area. This lighting must meet the efficiency measure specified. The applicant must also install a centralised lighting control system or Building Management System (BMS) for the common area, where specified.		✓	✓
(c) The applicant must install the systems and fixtures specified in the "Central energy systems" column of the table below. In each case, the system or fixture must be of the type, and meet the specifications, listed for it in the table.	✓	✓	✓

Notes

1. In these commitments, "applicant" means the person carrying out the development.
2. The applicant must identify each dwelling, building and common area listed in this certificate, on the plans accompanying any development application, and on the plans and specifications accompanying the application for a construction certificate / complying development certificate, for the proposed development, using the same identifying letter or reference as is given to that dwelling, building or common area in this certificate.
3. This note applies if the proposed development involves the erection of a building for both residential and non-residential purposes (or the change of use of a building for both residential and non-residential purposes). Commitments in this certificate which are specified to apply to a "common area" of a building or the development, apply only to that part of the building or development to be used for residential purposes.
4. If this certificate lists a central system as a commitment for a dwelling or building, and that system will also service any other dwelling or building within the development, then that system need only be installed once (even if it is separately listed as a commitment for that other dwelling or building).
5. If a star or other rating is specified in a commitment, this is a minimum rating.
6. All alternative water systems to be installed under these commitments (if any), must be installed in accordance with the requirements of all applicable regulatory authorities. NOTE: NSW Health does not recommend that stormwater, recycled water or private dam water be used to irrigate edible plants which are consumed raw, or that rainwater be used for human consumption in areas with potable water supply.

Legend

1. Commitments identified with a "✓" in the "Show on DA plans" column must be shown on the plans accompanying the development application for the proposed development (if a development application is to be lodged for the proposed development).
2. Commitments identified with a "✓" in the "Show on CC/CDC plans and specs" column must be shown in the plans and specifications accompanying the application for a construction certificate / complying development certificate for the proposed development.
3. Commitments identified with a "✓" in the "Certifier check" column must be certified by a certifying authority as having been fulfilled. (Note: a certifying authority must not issue an occupation certificate (either interim or final) for a building listed in this certificate, or for any part of such a building, unless it is satisfied that each of the commitments whose fulfilment it is required to monitor in relation to the building or part, has been fulfilled).

Assessor Certificate

Multiple Dwellings

Certificate Version 6.1. Prior versions not valid after 1 March 2006

Issued in accordance with
BASIX Thermal Comfort Simulation Method.



Assessor			
Name:	David Baggs	Company:	Ecospecifier
Address:	PO Box 840 Wynnum 4178		
Phone:	(07) 3890 5752	Fax:	(07) 3890 8765
	Email: dbaggs@netspace.net.au		
Declaration of interest:	None		
Client			
Name:	Brian Mann	Company:	Robertson + Marks
Address:	Ground Floor 11-17 Buckingham Street Surry Hills 2010		
Phone:	(02) 9319 4388	Fax:	(02) 9319 7338
	Email: mail@marks.net.au		
Project			
Address:	41 Belmore Street Meadowbank 2114		
Applicant:	Robertson + Marks	LGA:	Ryde City Council
Assessment			
Date:	17/11/2010	File ref:	1-01
		Software:	BERS Pro
		Version:	V4.1
Documentation			

All details, upon which this assessment has been based, are included in the project documentation that has been stamped and signed by the Assessor issuing this certificate, as identified below:

Thermal Performance Spec: **Attached, Affixed to Page#:**
STAGE 1 PROJECT APPLICATION (12 Nov 2010) A101/D to A104/D, A105/C to A117/C

Drawings: (Title, Ref.#, Revision, Issue date, etc)
STAGE 1 PROJECT APPLICATION (12 Nov 2010) A101/D

Building Specifications: (Title, Ref.#, Revision, Issue date, etc)
Only specifications, detailed on Drawings identified above, have been referenced



ABSA Assessor Certificate		Assessor # 20047		Certificate # 43262169		Issued: 17/11/2010	
Thermal performance specifications						Page 1 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
1--01	43262169	61.4	0.0	6.1	13.4	No	No
1--02	76644715	50.4	0.0	2.4	9.7	No	No
1--03	53234834	83.5	0.0	9.6	8.5	No	No
1--04	74324171	88.6	0.0	11.0	8.2	No	No
1--05	43251857	75.8	0.0	3.9	10.9	No	No
1--06	66479821	89.3	0.0	16.4	15.4	No	No
1--07	24006933	83.3	0.0	7.4	9.6	No	No
1--08	80114542	56.0	0.0	4.3	12.0	No	No
1--09	14184553	54.9	0.0	4.7	11.6	No	No
1--10	21724325	104.3	0.0	13.9	12.7	No	No
1--11	53471479	72.5	0.0	8.8	7.3	No	No
1--12	98753643	85.9	0.0	11.0	9.0	No	No
1--13	43739166	84.9	0.0	18.8	12.5	No	No

ABSA Assessor Certificate		Assessor # 20047		Certificate # 43262169		Issued: 17/11/2010	
Thermal performance specifications						Page 2 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
1--14	66264252	89.2	0.0	14.7	7.9	No	No
1--15	65963894	89.6	0.0	9.6	12.6	No	No
1--16	79380575	94.1	0.0	9.2	11.5	No	No
1--17	66264252	88.6	0.0	15.2	7.5	No	No
1--18	43445540	84.9	0.0	18.1	10.9	No	No
1--19	36315312	89.2	0.0	14.3	7.7	No	No
1--20	15256876	89.6	0.0	9.9	12.2	No	No
1--21	36882744	118.4	5.0	24.9	21.6	No	No
1--22	34347725	84.9	0.0	13.7	14.7	No	No
1--23	65683417	90.0	0.0	15.7	9.4	No	No
1--24	21868466	83.6	0.0	23.6	14.6	No	No
1--25	74814792	84.4	0.0	22.7	16.5	No	No
1--26	72134762	100.1	0.0	28.1	18.5	No	No
1--27	87042588	91.7	0.0	2.8	13.6	No	No
1--28	52764007	91.1	0.0	3.5	14.6	No	No
1--29	94988342	90.0	0.0	14.7	10.0	No	No
1--30	24847819	83.6	0.0	26.5	14.0	No	No
1--31	77237543	83.6	0.0	25.3	14.1	No	No
1--32	34092537	90.1	0.0	9.1	8.6	No	No
1--33	87042588	91.7	0.0	3.0	13.5	No	No
1--34	52764007	91.1	0.0	4.4	14.6	No	No
2--01	59539653	56.0	0.0	5.9	11.0	No	No
2--02	83246608	52.6	0.0	5.3	11.1	No	No
2--03	18615841	81.0	0.0	8.6	9.1	No	No
2--04	74858252	85.9	0.0	11.5	8.2	No	No
2--05	42028736	73.5	0.0	3.9	10.8	No	No
2--06	87837249	104.3	0.0	10.3	16.1	No	No
2--07	24006933	83.3	0.0	7.4	9.6	No	No
2--08	16196717	56.0	0.0	1.1	12.1	No	No
2--09	87704574	54.9	0.0	1.6	11.8	No	No
2--10	21724325	104.3	0.0	13.9	12.7	No	No
2--11	53471479	72.5	0.0	8.8	7.3	No	No
2--12	98753643	85.9	0.0	11.0	8.7	No	No
2--13	57947533	84.9	0.0	16.5	13.5	No	No
2--14	66264252	89.2	0.0	14.7	7.9	No	No
2--15	15256876	89.6	0.0	9.9	12.2	No	No
2--16	79380575	94.1	0.0	9.2	11.5	No	No
2--17	36315312	88.6	0.0	14.3	7.7	No	No
2--18	37016356	84.9	0.0	14.3	11.6	No	No
2--19	16326919	89.2	0.0	13.3	7.7	No	No
2--20	93423331	89.6	0.0	14.3	14.1	No	No
2--21	95807164	118.4	5.0	34.4	27.9	No	No
2--22	37368654	84.9	0.0	10.7	15.5	No	No
2--23	65683417	90.0	0.0	15.7	9.4	No	No
2--24	53259221	83.6	0.0	21.8	16.0	No	No
2--25	36663266	84.4	0.0	22.1	17.1	No	No

ABSA Assessor Certificate		Assessor # 20047		Certificate # 43262169		Issued: 17/11/2010	
Thermal performance specifications						Page 3 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
2--26	72134762	100.1	0.0	28.1	18.5	No	No
2--27	87042588	91.7	0.0	2.8	13.6	No	No
2--28	52764007	91.1	0.0	3.5	14.6	No	No
2--29	94988342	90.0	0.0	14.7	10.0	No	No
2--30	21868466	83.6	0.0	24.1	15.3	No	No
2--31	24339382	83.6	0.0	23.1	15.6	No	No
2--32	34092537	90.1	0.0	9.1	8.6	No	No
2--33	35189304	91.7	0.0	3.2	13.1	No	No
2--34	52764007	91.1	0.0	4.4	14.6	No	No
3--01	87704574	56.0	0.0	1.5	11.5	No	No
3--02	62134223	52.6	0.0	1.4	12.6	No	No
3--03	53171767	81.0	0.0	8.4	9.2	No	No
3--04	74858252	85.9	0.0	11.5	8.2	No	No
3--05	42028736	73.5	0.0	3.9	10.8	No	No
3--06	39319325	104.3	0.0	9.1	16.2	No	No
3--07	24006933	83.3	0.0	7.4	9.6	No	No
3--08	16196717	56.0	0.0	1.1	12.1	No	No
3--09	87704574	54.9	0.0	1.6	11.8	No	No
3--10	42455386	104.3	0.0	14.6	12.8	No	No
3--11	53471479	72.5	0.0	8.9	7.2	No	No
3--12	98753643	85.9	0.0	11.0	9.0	No	No
3--13	23199371	84.9	0.0	19.8	17.5	No	No
3--14	23655135	89.2	0.0	16.5	8.7	No	No
3--15	93423331	89.6	0.0	14.3	14.3	No	No
3--16	93423331	94.1	0.0	13.6	13.5	No	No
3--17	63606856	88.6	0.0	23.6	10.3	No	No
3--18	26592033	84.9	0.0	10.5	12.5	No	No
3--19	58395767	89.2	0.0	20.8	10.8	No	No
3--21	22188119	125.7	0.0	47.0	38.4	No	No
3--22	47251234	84.9	0.0	20.0	23.7	No	No
3--23	65683417	90.0	0.0	15.7	9.4	No	No
3--24	85144514	83.6	0.0	20.7	17.1	No	No
3--25	38524586	84.4	0.0	21.4	17.8	No	No
3--26	72134762	100.1	0.0	28.1	18.5	No	No
3--27	35189304	91.7	0.0	3.0	13.3	No	No
3--28	81473395	91.1	0.0	3.7	14.4	No	No
3--29	94988342	90.0	0.0	14.7	10.0	No	No
3--30	53259221	83.6	0.0	22.1	16.3	No	No
3--31	85144514	83.6	0.0	21.3	16.6	No	No
3--32	34092537	90.1	0.0	9.1	8.6	No	No
3--33	35189304	91.7	0.0	3.2	13.1	No	No
3--34	52764007	91.1	0.0	4.4	14.6	No	No
4--01	87704574	56.0	0.0	1.5	11.5	No	No
4--02	62134223	52.6	0.0	1.4	12.6	No	No
4--03	53171767	81.0	0.0	8.4	9.2	No	No
4--04	74858252	85.9	0.0	11.8	8.2	No	No

ABSA Assessor Certificate		Assessor # 20047		Certificate # 43262169		Issued: 17/11/2010	
Thermal performance specifications						Page 4 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
4--05	42028736	73.5	0.0	3.9	10.8	No	No
4--06	39319325	104.3	0.0	8.5	16.3	No	No
4--07	24006933	83.3	0.0	7.4	9.6	No	No
4--08	16196717	56.0	0.0	1.1	12.1	No	No
4--09	53073323	54.9	0.0	6.1	15.9	No	No
4--10	20343637	104.3	0.0	26.7	15.3	No	No
4--11	50645283	72.5	0.0	20.1	10.1	No	No
4--12	98753643	85.9	0.0	11.0	9.0	No	No
4--13	41785609	102.4	0.0	25.5	20.9	No	No
4--15	67546495	121.5	0.0	26.9	56.9	No	No
4--16	90291672	97.8	5.0	41.4	40.5	No	No
4--18	42516911	84.5	0.0	42.2	29.4	No	No
4--23	65683417	90.0	0.0	15.7	9.4	No	No
4--24	85144514	83.6	0.0	20.8	16.8	No	No
4--25	45527660	84.4	0.0	28.8	26.3	No	No
4--26	82083395	100.1	0.0	42.6	22.3	No	No
4--27	75413535	91.7	0.0	7.7	15.7	No	No
4--28	81473395	91.1	0.0	3.7	14.4	No	No
4--29	94988342	90.0	0.0	14.7	10.0	No	No
4--30	85144514	83.6	0.0	20.8	17.3	No	No
4--31	74899264	83.6	0.0	20.1	17.2	No	No
4--32	34092537	90.1	0.0	9.1	8.6	No	No
4--33	87042588	91.7	0.0	3.0	13.5	No	No
4--34	52764007	91.1	0.0	4.3	14.7	No	No
5--01	85323856	56.0	0.0	1.7	11.3	No	No
5--02	87704574	52.6	0.0	1.7	12.2	No	No
5--03	18615841	81.0	0.0	8.6	9.1	No	No
5--04	74858252	85.9	0.0	11.5	8.2	No	No
5--05	42028736	73.5	0.0	3.9	10.8	No	No
5--06	39319325	104.3	0.0	9.0	15.8	No	No
5--07	24006933	83.3	0.0	7.4	9.6	No	No
5--08	16196717	56.0	0.0	1.4	12.2	No	No
5--09	27476466	90.5	5.3	35.4	24.2	No	No
5--12	33772960	85.9	0.0	10.6	10.1	No	No
5--23	40764989	90.0	0.0	19.3	16.2	No	No
5--24	51589939	83.6	0.0	34.2	38.6	No	No
5--28	36714648	137.9	0.0	31.3	37.3	No	No
5--29	94988342	90.0	0.0	14.7	10.0	No	No
5--30	23199371	83.6	0.0	20.4	17.5	No	No
5--31	74899264	83.6	0.0	19.7	17.3	No	No
5--32	24006933	90.1	0.0	6.9	9.6	No	No
5--33	87042588	91.7	0.0	3.0	13.5	No	No
5--34	52764007	91.1	0.0	4.3	14.7	No	No
6--01	85323856	56.0	0.0	1.7	11.3	No	No
6--02	87704574	52.6	0.0	1.7	12.2	No	No
6--03	34623634	81.0	0.0	14.9	11.0	No	No

ABSA Assessor Certificate		Assessor # 20047		Certificate # 43262169		Issued: 17/11/2010	
Thermal performance specifications						Page 5 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
6--04	74858252	85.9	0.0	11.5	8.2	No	No
6--05	42028736	73.5	0.0	3.9	10.8	No	No
6--06	39319325	104.3	0.0	9.0	15.8	No	No
6--07	58892079	83.3	0.0	15.7	12.0	No	No
6--08	75382844	56.0	0.0	6.7	16.6	No	No
6--09	71904551	90.5	5.3	49.9	41.5	No	No
6--12	71184713	85.9	0.0	23.1	25.1	No	No
6--29	48138757	90.0	0.0	24.7	15.3	No	No
6--30	41317404	83.6	0.0	32.8	22.6	No	No
6--31	42044511	83.6	0.0	34.4	35.5	No	No
6--32	85829971	110.9	0.0	39.3	33.2	No	No
6--33	57165972	91.7	0.0	13.9	19.0	No	No
6--34	22427037	91.1	0.0	13.5	20.5	No	No
7--01	16196717	56.0	0.0	1.3	11.9	No	No
7--02	62134223	52.6	0.0	1.4	12.6	No	No
7--03	33138494	120.9	0.0	19.5	14.7	No	No
7--04	24172051	85.9	0.0	15.1	11.4	No	No
7--05	86842526	126.1	0.0	20.0	15.7	No	No
7--06	39319325	104.3	0.0	9.0	15.8	No	No
8--01	53073323	56.0	0.0	6.2	16.2	No	No
8--02	75382844	52.6	0.0	7.1	16.6	No	No
8--03	96422748	120.9	0.0	33.3	31.9	No	No
8--04	54424744	85.9	0.0	21.9	17.0	No	No
8--05	97566732	126.1	0.0	33.4	23.8	No	No
8--06	52444087	104.3	0.0	19.2	22.2	No	No
GF-01	25075205	57.7	0.0	53.0	10.4	No	No
GF-02	37247766	54.2	0.0	44.9	9.1	No	No
GF-03	26658965	83.5	0.0	27.0	7.8	No	No
GF-04	70386810	88.6	0.0	31.6	7.3	No	No
GF-05	42347761	67.7	0.0	63.9	9.6	No	No
GF-06	22246661	107.5	0.0	60.1	13.6	No	No
GF-07	33205587	83.3	0.0	31.5	9.4	No	No
GF-08	58023575	49.9	0.0	38.7	10.7	No	No
GF-09	51579693	58.6	0.0	47.9	14.3	No	No
GF-10	92465916	86.3	0.0	36.5	14.5	No	No
GF-11	35427437	72.5	0.0	30.2	7.0	No	No
GF-12	41023348	85.9	0.0	31.5	8.2	No	No
GF-13	87244275	84.9	0.0	20.2	12.1	No	No
GF-14	66264252	89.2	0.0	14.7	7.9	No	No
GF-15	11246111	89.6	0.0	17.6	11.5	No	No
GF-16	79380575	94.1	0.0	9.2	11.5	No	No
GF-17	72964848	88.6	0.0	15.5	7.6	No	No
GF-18	25527396	84.9	0.0	20.8	10.1	No	No
GF-19	66264252	89.2	0.0	14.7	7.6	No	No
GF-20	15256876	89.6	0.0	9.9	12.2	No	No
GF-21	11210424	118.4	5.0	27.2	21.4	No	No

ABSA Assessor Certificate		Assessor # 20047		Certificate # 43262169		Issued: 17/11/2010	
Thermal performance specifications						Page 6 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
GF-22	21071713	84.9	0.0	17.1	13.2	No	No
GF-23	65683417	90.0	0.0	15.7	9.4	No	No
GF-24	21868466	83.6	0.0	24.1	14.7	No	No
GF-25	53259221	84.4	0.0	22.3	16.3	No	No
GF-26	72134762	100.1	0.0	28.1	18.5	No	No
GF-27	35189304	91.7	0.0	3.0	13.3	No	No
GF-28	81473395	91.1	0.0	3.7	14.4	No	No
GF-29	29971701	90.0	0.0	21.6	10.0	No	No
GF-30	21759877	83.6	0.0	28.1	12.8	No	No
GF-31	28987161	83.6	0.0	26.8	13.4	No	No
GF-32	34092537	90.1	0.0	9.1	8.6	No	No
GF-33	87042588	91.7	0.0	3.0	13.5	No	No
GF-34	75846547	91.1	0.0	9.3	14.1	No	No
LG-13	51182528	84.9	0.0	41.3	10.2	No	No
LG-14	17595622	89.2	0.0	43.2	7.6	No	No
LG-15	87647588	58.0	0.0	33.5	9.9	No	No
LG-16	13421358	94.1	0.0	27.8	10.8	No	No
LG-17	84353926	88.6	0.0	37.2	7.1	No	No
LG-18	25345170	84.9	0.0	42.0	10.3	No	No
LG-19	31328748	89.2	0.0	14.8	7.4	No	No
LG-20	49840682	89.6	0.0	18.3	11.3	No	No
LG-21	38246814	118.4	5.0	28.4	21.0	No	No
LG-22	43739166	84.9	0.0	18.9	13.0	No	No
LG-23	65683417	90.0	0.0	15.7	9.4	No	No
LG-24	77237543	83.6	0.0	24.8	13.9	No	No
LG-25	24339382	84.4	0.0	22.8	15.7	No	No
LG-26	88476721	100.1	0.0	28.6	18.1	No	No
LG-27	35189304	91.7	0.0	3.0	13.3	No	No
LG-28	67706473	91.1	0.0	7.3	13.0	No	No
LG-29	46168467	90.0	0.0	42.6	9.7	No	No
LG-30	11164404	83.6	0.0	50.1	11.8	No	No
LG-31	11164404	83.6	0.0	49.2	12.1	No	No
LG-32	48375676	90.1	0.0	28.1	7.8	No	No
LG-33	91656645	91.7	0.0	54.0	10.9	No	No
LG-34	58826089	58.0	0.0	58.6	10.4	No	No
UB-19	17595622	89.2	0.0	43.3	7.7	No	No
UB-20	87647588	58.0	0.0	33.5	9.9	No	No
UB-21	33281532	118.4	5.0	47.5	21.9	No	No
UB-22	60658035	84.9	0.0	42.9	11.1	No	No
UB-23	68320071	90.0	0.0	44.1	9.0	No	No
UB-24	66281722	83.6	0.0	46.6	11.8	No	No
UB-25	43541727	84.4	0.0	44.0	14.1	No	No
UB-26	76862845	100.1	0.0	44.4	18.2	No	No
UB-27	91656645	91.7	0.0	53.7	10.7	No	No
UB-28	58826089	58.0	0.0	58.6	10.4	No	No

Thermal Performance Specifications - BASIX THERMAL COMFORT - Simulation Method

These are the Specifications upon which the Certified Assessment is based. If details included in these Specifications vary from other drawings or written specifications, these Specifications shall take precedence. If only one specification option is detailed for a building element, that specification must apply to all instances of that element for the project. If alternate specifications are detailed for a building element, the location and extent of alternate specifications must be detailed below and / or clearly indicated on referenced documents.

Windows	Product ID	Glass	Frame	U value	SHGC	Area M2	Detail
GGG-05-013a		Single Low-E Clear	Aluminium	4.70	0.63		Throughout

Skylights	Product ID	Glass	Frame	U value	SHGC	Area M2
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Any U and SHGC values specified on Certificates Issued after 1 May 2007 are according to NFRC. All values prior to this date are ANAC. Alternate products may be used if their U value is lower, and the SHGC value is less than 10% higher or lower.

External walls	Construction	Insulation	Colour - Solar absorptancy	Detail
Brick Veneer	R2.0		Light - SA <0.475	As per plans
Brick Veneer	R2.0		Dark - SA > 0.7	As per plans

Internal walls	Construction	Insulation	Detail
Plasterboard on Studs	None		Throughout
Plasterboard and Hebel 75mm	None		Common internal walls

Floors	Construction	Insulation	Covering	Detail
Concrete	None		Ceramic Tile or Carpet	As per plans
Concrete	R1.0		Ceramic Tile or Carpet	Unit floors above car park except those listed
Unit floors above car park have R1 under except for GF-01,GF-02,GF-05,GF-06,GF08,GF09,LG33,LG34,UB27,UB28				

Ceilings	Construction	Insulation	Detail
Plasterboard	None		Throughout
Plasterboard	R3.0		Units below Terraces or Metal Roofs

Roof	Construction	Insulation	Colour - Solar absorptancy	Detail
Tiled Concrete Terraces	None		Medium - SA 0.475 - 0.7	As per plans
Metal Deck	None		Medium - SA 0.475 - 0.7	As per plans
Concrete Roof	R3.0		Medium SA 0.475 - 0.7	As per plans

Window cover	Internal (curtains)	External (awnings, shutters, etc)
Holland blinds	Throughout	Louvres 0

Fixed shading	Eaves (width - inc. gutters, height above windows)	Verandahs, Pergolas (type, description)
0 0	Varied - Balconies, sunhoods, etc.	100% Opaque Throughout

Overshadowing	Overshadowing structures	Overshadowing trees
Yes		Yes

Orientation, Exposure, Ventilation and Infiltration

Orientation of nominal north elevation	45
Terrain category	Suburban
Roof ventilation:	Unventilated
Cross ventilation:	Standard
Subfloor ventilation:	Open
Living area open to entry:	No
Living areas separated by doors:	No
Stair open to heated areas:	No
Weather seals to windows and doors:	Yes
Exhaust fans without dampers:	No
Ventilated skylights:	No
Open fireplace or unflued gas heater:	No
Vented downlights:	No
Wall and ceiling vents:	No

