

## Thermal Comfort & BASIX Assessment

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Meriton  
Proposed Residential Development  
Urban Block 5W

To be built at:

130-150 Bunnerong Road,  
Pagewood, NSW 2036

Issue	File Ref	Description	Author	Date
A	9530	Thermal Comfort and BASIX Assessment	TMC/DG	27/01/16
B	17-0801	Updated thermal comfort and BASIX assessment to reflect plan changes	JB	17/07/17

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Meriton. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our client's instructions and preferred building inclusions.



Prepared for Meriton

Level 11, Meriton Tower, 528 Kent Street, Sydney, NSW 2000

Contact Norelle Jones. Phone: (02) 9287 2888 Email: [norellej@meriton.com.au](mailto:norellej@meriton.com.au)

**Introduction** Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at 130-150 Bunnerong Road, Pagewood, NSW 2036. Heating and cooling loads for the development have been determined using BERS thermal simulation software. The report is based on the architectural drawings provided by SJB Architects. For further details, refer to the individual BASIX certificates and Efficient Living inclusions summary respectively.

**Analysis** The BASIX assessment is divided into three sections, each independently measuring the efficiency of the development. These are Water, Thermal Comfort and Energy. BASIX requires a minimum target of 40% for the Water section. A BERS pass or fail is required for the thermal comfort section and a minimum required target of 20% for the energy section.

**Water** The proposed development has achieved the BASIX Water target of 40%. The water usage of the development is calculated based on the number and efficiency of permanent fixtures and appliances such as taps, showerheads and toilets, the dish washer and clothes washing machine. The size of the rain tank and number of connections has a huge impact on your water score as does the area of gardens and lawns and whether or not low water plant species are incorporated.

**Thermal comfort** Thermal Comfort targets are set by the Department of Planning in the form of heating and cooling caps. The buildings thermal physics is measured using BERS thermal performance assessment tools. This equates an expected level of energy consumption to heat and cool each dwelling per annum expressed in MJ (megajoules) per square meter of floor area. Each unit has individual heating and cooling caps and a weighted average heating and cooling load for the whole development. The weighted average caps are a lot harder to achieve than the individual unit caps. Please note that original and updated thermal comfort assessments were modelled over a period of time in which the assessment tool itself had been updated. The new system saw a variety of changes, most notably to glazing specifications and the certification process. As the majority of the assessment fell under the previous version of the modelling software, the original certificate number generated for this development will be retained.

**Energy** The proposed development has achieved the energy target of 20% to pass this section.

The energy usage of the development is calculated based on the efficiency of fixed appliances that will be used. This includes the air conditioning system, hot water system, lighting, exhaust fans, cook top, oven, and clothes drying facilities.

**Inclusions summary** The inclusions as outlined in the table below have been incorporated in each unit to allow them to reach their environmental sustainability targets.

**Thermal comfort** Average heating loads are 4% below all allowable BASIX targets

Average cooling loads are 66% below all allowable BASIX targets

**Glazing Doors/windows** The original and updated thermal comfort assessments were modelled over a period of time in which the assessment tool itself had been updated. In the new version, changes were made to the way in which glazing types were grouped and the default U-value and SHGC that are used. These changes are reflected below.

**BERS 4.2 Software (pre-update)**

Aluminium framed single tint glazing to all units except for those included in the update:

U-Value: 6.83 (equal to or lower than) SHGC: 0.54 (±10%)

Aluminium framed low-e tint glazing to units **as per assessor certificate:**

U-Value: 4.68 (equal to or lower than) SHGC: 0.39 (±10%)

Given values are AFRC, total window system values (glass and frame)

**BERS 4.3 (updated)[Building A – 19.01, 19.02, 19.05, 19.06, Building B – 15.15, 15.16, 15.19, Building C - 15.26, 15.27, 15.30, Building D – 19.37, 19.38, 19.40, 19.41]**

Aluminium framed single clear glazing:

U-Value: 6.70 (equal to or lower than) SHGC: 0.57 (±10%)

A – awning windows + hinged glazed doors

U-Value: 6.70 (equal to or lower than) SHGC: 0.70 (±10%)

B – sliding doors/windows + fixed glazing + louvres windows

Aluminium framed clear performance glazing to units **as per assessor certificate:**

U-Value: 4.80 (equal to or lower than) SHGC: 0.51 (±10%)

**A** – awning windows + hinged glazed doors

U-Value: 4.80 (equal to or lower than) SHGC: 0.59 ( $\pm 10\%$ )  
**B** – sliding doors/windows + fixed glazing + louvres windows  
 Given values are AFRC, total window system values (glass and frame)

Roof Concrete roof no insulation - Default colour

Ceiling Plasterboard ceiling, R2.0 insulation where exposed roof & balconies above  
 Plasterboard ceiling, R2.5 insulation where exposed roof & balconies are above **as per assessor certificate**  
 Plasterboard ceiling, no insulation where neighbouring units are above  
 Note: Loss of ceiling insulation due to penetrations from down lights have been accounted for in accordance with BCA Technical Note 2 and assume non-ventilated LED down lights.

External wall 150mm precast concrete walls with R1.5 insulation throughout  
 Colourbacked glass spandrel with R1.5 insulation plasterboard lined internally  
 Precast concrete spandrel with R1.5 insulation plasterboard lined internally  
 Default colour

Inter tenancy walls 75 mm Hebel power panel wall – R1.7 (75mm) insulation to corridor walls – no insulation between neighbours.  
 Concrete to lift shaft and fire stairs walls with R1.7 insulation

Walls with-in dwellings Plasterboard on studs – no insulation

Floors Concrete – R1.2 floor insulation where floor is exposed **as per assessor certificate:**  
 Concrete between levels no insulation

Floor coverings Carpet to bedrooms, living areas, tiles to wet areas and kitchens

**BASIX water inclusions** Score 40/40

Fixtures within units Showerheads: Mid flow ( $>6\text{L}$  but  $\leq 7.5\text{ L/min}$ )  
 Toilets: 4.0 star  
 Kitchen taps: 4.0 star  
 Bathroom vanity taps: 4.0 star



Fixtures to common areas	Showerheads: Mid flow (>6L but <=7.5 L/min) Toilets: 4.0 star Vanity taps: 4.0 star
Appliances within units	Dishwashers: 4.5 star
Central rainwater storage	Tank size 10,000L Collecting from 1300m <sup>2</sup> roof area (non-trafficable roof area of building B & C) Connected to outdoor tap for irrigation of all landscaping
Pool & Spa	Pool to have a capacity no greater than 180kL Spa to have a capacity no greater than 6kL
Fire Sprinkler System	Fire sprinkler system to be contained in a closed loop for reuse
<b>BASIX energy inclusions</b>	Score 23/20
Hot water system	Central gas-fired boiler with R0.6 (~25mm) insulation to ring main and supply risers
Lift motors	All lifts to have gearless traction with VVVF motor
Appliances & other efficiency measures within units	Gas cooktop & electric oven Dishwashers: 3.5 star Clothes dryers: 2.0 star Well ventilated fridge space
Heating & cooling within units	All units to have individual, single phase, reverse cycle air conditioning to living areas and at least 1 bedroom. Day night zoning nominated 2.0 stars is required in cooling mode & 2.5 stars heating mode - 1 & 2 bed apartments 2.0 stars is required in cooling mode & 3.0 stars heating mode - 3 bed apartments
Artificial lighting within units	At least 80% of all light fittings with-in each room are to have fluorescent or LED globes.
Ventilation within units	Bathroom – Individual fan, ducted to roof or façade – manual on / manual off switch Laundry – Individual fan, ducted to roof or façade – manual on / manual off switch Kitchen range hood – Individual fan, not ducted – manual on / manual off switch





Artificial lighting  
to common areas

Communal Facilities – Compact fluorescent or LEDs with manual on / manual off switch  
 Changing rooms - Compact fluorescent or LEDs with manual on / manual off switch  
 Car park area - Fluorescent lights with zoned switching and motion sensors  
 Lifts – LED lights connected to lift call button  
 Garbage room & bin shoots – Fluorescent lights with motion sensor  
 Plant or services rooms – Fluorescent lights with manual on / manual off switch  
 Ground floor lobbies – LED downlights with zoned switching and motion sensors  
 Hallways – LED downlights with zoned switching and motion sensors  
*Lobbies & hallways to have low level lighting to remain on at all times*

Ventilation

Communal Facilities – air conditioned – time clock or BMS controlled  
 Changing rooms - Exhaust air - time clock or BMS controlled  
 Car park area – supply & exhaust air with a carbon monoxide monitor & VSD fan  
 Garbage room & bin shoots – Exhaust air, running continuously  
 Plant or service rooms – Supply only, interlocked to light  
 Ground floor lobbies – ventilation supply – time clock or BMS controlled  
 Hallways – ventilation supply – time clock or BMS controlled

Alternative energy

No BASIX requirement for alternative energy

Pool, Spa & Sauna

Pool & spa heating systems: Gas  
 Pool and spa pumps to be controlled by a timer  
 Saunas: gas heating – manual on / timer off

Report Contact

Jonathan Bills  
 Phone: (02) 9970 6181 Email: jonathan@efficientliving.com.au



Documentation This report is based upon the following plans prepared by SJB Architects:

Update: Job No. 5364, Dwg No. A1021\_A-19[B], A1022\_A-RF[D], A4021\_D-19[B], A4022\_D-RF[D], A2017\_B-15[D], A2018\_B-RF[F], A3017\_C-15[D], A3018\_C-RF[F], A0051\_X-N[A], A0053\_X-A0052\_X-E[A], A1051\_A[B], A1052\_A[B], A1053\_A[B], A1054\_A[B], A2051\_B[B], A2052\_B[B], A2053\_B[B], A2054\_B[B], A3051\_C[B], A3052\_C[B], A3053\_C[B], A3054\_C[B], A4051\_D[B], A4051\_D[B], A4052\_D[B], A4053\_D[B], A4054\_D[B]

Original:

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DA0200	FLOOR PLAN - GROUND
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DA0202	FLOOR PLAN - LEVEL 2
DA0203	FLOOR PLAN - LEVEL 3
DA0204	FLOOR PLAN - LEVEL 4
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DA0206	FLOOR PLAN - LEVELS 6-11
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DA0220	FLOOR PLAN - ROOF
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DA0703	APARTMENT TYPES - 2 BED
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DA0705	APARTMENT TYPES - 3 BED
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# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**



Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866				Accreditation #			VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
Building A									
G.01	2	111	0	54	18	4.5	0	No	None
G.02	2	96	0	29	11	6.5	0	No	None
G.03	2	96	0	30	11	6.5	0	No	None
G.05	2	96	0	31	9	6.5	0	No	None
G.06	1	96	0	46	24	4.5	0	No	None
1.01	2	98	0	41	28	4.5	1	No	None
1.02	2	85	0	30	26	5.5	0	No	None
2.01	2	98	0	41	28	4.5	1	No	None
2.02	2	85	0	30	26	5.5	0	No	None
2.03	2	92	0	59	20	4.0	0	No	Low-e glazing throughout
2.05	3	111	0	34	21	5.5	0	No	R1.2 floor insulation over car park
3.01	2	98	0	48	20	4.5	1	No	None
3.02	2	85	0	40	14	5.5	0	No	None
3.03	2	92	0	62	17	4.0	0	No	None
3.05	3	111	0	56	14	4.5	0	No	None
4.01	2	98	0	47	21	4.0	1	No	None
4.02	2	85	0	38	17	5.5	0	No	None
4.03	2	92	0	65	17	4.0	0	No	None
4.05	3	111	0	39	13	5.5	0	No	None
5.01	2	84	0	55	9	5.0	0	No	R1.2 floor insulation over car park
5.02	2	87	0	58	11	4.5	0	No	R1.2 floor insulation over car park
5.03	2	85	0	62	6	4.5	0	No	Low-e glazing to living area only R1.2 floor insulation over car park
5.05	2	84	0	66	9	5.5	0	No	R1.2 floor insulation over car park
5.06	2	84	0	64	8	4.5	0	No	R1.2 floor insulation over car park
5.07	3	124	0	62	18	4.0	0	No	Low-e glazing to living area only
5.08	1	64	0	55	18	4.5	0	No	Low-e glazing to living area only
5.09	1	64	0	61	16	4.0	0	No	None
5.10	3	124	0	66	15	4.0	0	No	Low-e glazing to living area only
5.11	3	122	0	65	17	4.0	0	No	Low-e glazing to living area only R1.2 floor insulation over car park
6.01	2	84	0	42	10	5.5	0	No	None
6.02	2	87	0	43	12	5.5	0	No	None
6.03	2	85	0	51	8	5.0	0	No	None
6.05	2	84	0	49	8	5.5	0	No	None
6.06	2	84	0	48	9	5.5	0	No	None



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Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
6.07	3	124	0	63	17	4.0	0	No	Low-e glazing to living area only
6.08	1	64	0	65	23	3.5	0	No	None
6.09	1	64	0	62	16	4.0	0	No	None
6.10	3	124	0	62	16	4.0	0	No	Low-e glazing to living area only
6.11	3	122	0	58	19	4.0	0	No	None
7.01	2	84	0	42	10	5.5	0	No	None
7.02	2	87	0	43	12	5.5	0	No	None
7.03	2	85	0	51	8	5.0	0	No	None
7.05	2	84	0	49	8	5.5	0	No	None
7.06	2	84	0	48	9	5.5	0	No	None
7.07	3	124	0	63	17	4.0	0	No	Low-e glazing to living area only
7.08	1	64	0	65	23	3.5	0	No	None
7.09	1	64	0	62	16	4.0	0	No	None
7.10	3	124	0	62	16	4.0	0	No	Low-e glazing to living area only
7.11	3	122	0	58	19	4.0	0	No	None
8.01	2	84	0	43	10	5.5	0	No	None
8.02	2	87	0	43	11	5.5	0	No	None
8.03	2	85	0	51	8	5.0	0	No	None
8.05	2	84	0	50	8	5.5	0	No	None
8.06	2	84	0	48	9	5.5	0	No	None
8.07	3	124	0	64	17	4.0	0	No	Low-e glazing to living area only
8.08	1	64	0	66	23	3.5	0	No	None
8.09	1	64	0	63	15	4.0	0	No	None
8.10	3	124	0	63	15	4.0	0	No	Low-e glazing to living area only
8.11	3	122	0	59	19	4.0	0	No	None
9.01	2	84	0	43	10	5.5	0	No	None
9.02	2	87	0	43	11	5.5	0	No	None
9.03	2	85	0	51	8	5.0	0	No	None
9.05	2	84	0	50	8	5.5	0	No	None
9.06	2	84	0	48	9	5.5	0	No	None
9.07	3	124	0	64	17	4.0	0	No	Low-e glazing to living area only
9.08	1	64	0	66	23	3.5	0	No	None
9.09	1	64	0	63	15	4.0	0	No	None
9.10	3	124	0	63	15	4.0	0	No	Low-e glazing to living area only
9.11	3	122	0	59	19	4.0	0	No	None
10.01	2	84	0	43	10	5.5	0	No	None

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Certificate # 14733866					Accreditation #		VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
10.02	2	87	0	43	11	5.5	0	No	None
10.03	2	85	0	51	8	5.0	0	No	None
10.05	2	84	0	50	8	5.5	0	No	None
10.06	2	84	0	48	9	5.5	0	No	None
10.07	3	124	0	64	17	4.0	0	No	Low-e glazing to living area only
10.08	1	64	0	66	23	3.5	0	No	None
10.09	1	64	0	63	15	4.0	0	No	None
10.10	3	124	0	63	15	4.0	0	No	Low-e glazing to living area only
10.11	3	122	0	59	19	4.0	0	No	None
11.01	2	84	0	45	9	5.5	0	No	None
11.02	2	87	0	45	11	5.5	0	No	None
11.03	2	85	0	54	7	5.0	0	No	None
11.05	2	84	0	52	8	5.0	0	No	None
11.06	2	84	0	51	8	5.0	0	No	None
11.07	3	124	0	66	16	4.0	0	No	Low-e glazing to living area only
11.08	1	64	0	57	17	4.5	0	No	Low-e glazing to living area only
11.09	1	64	0	66	16	4.0	0	No	None
11.10	3	124	0	65	14	4.0	0	No	Low-e glazing to living area only
11.11	3	122	0	62	17	4.0	0	No	None
12.01	2	84	0	46	9	5.5	0	No	None
12.02	2	87	0	45	11	5.5	0	No	None
12.03	2	85	0	54	7	5.0	0	No	None
12.05	2	84	0	52	8	5.0	0	No	None
12.06	2	84	0	53	8	5.0	0	No	None
12.07	3	124	0	66	16	4.0	0	No	Low-e glazing to living area only
12.08	3	126	0	60	12	4.5	0	No	Low-e glazing throughout
12.09	3	124	0	63	14	4.0	0	No	Low-e glazing to living area and master bedroom
12.10	3	122	0	62	17	4.0	0	No	None
13.01	2	84	0	44	9	5.5	0	No	None
13.02	2	87	0	45	11	5.5	0	No	None
13.03	2	85	0	54	7	5.0	0	No	None
13.05	2	84	0	52	8	5.0	0	No	None
13.06	2	84	0	51	8	5.0	0	No	None
13.07	3	124	0	60	16	4.0	0	No	Low-e glazing to living area only
13.08	3	126	0	60	12	4.5	0	No	Low-e glazing throughout

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Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
13.09	3	124	0	63	14	4.0	0	No	Low-e glazing to living area and master bedroom
13.10	3	122	0	57	19	4.0	0	No	None
14.01	2	84	0	44	9	5.5	0	No	None
14.02	2	87	0	45	11	5.5	0	No	None
14.03	2	85	0	54	7	5.0	0	No	None
14.05	2	84	0	52	8	5.0	0	No	None
14.06	2	84	0	51	8	5.0	0	No	None
14.07	3	124	0	60	16	4.0	0	No	Low-e glazing to living area only
14.08	3	126	0	60	12	4.5	0	No	Low-e glazing throughout
14.09	3	124	0	63	14	4.0	0	No	Low-e glazing to living area and master bedroom
14.10	3	122	0	57	19	4.0	0	No	None
15.01	2	84	0	58	8	4.5	0	No	None
15.02	2	87	0	45	11	5.5	0	No	None
15.03	2	85	0	65	7	4.5	0	No	None
15.05	2	84	0	62	7	4.5	0	No	Low-e glazing to living area only
15.06	2	84	0	54	8	5.0	0	No	None
15.07	3	124	0	64	16	4.0	0	No	Low-e glazing to living area and master bedroom
15.08	3	126	0	60	12	4.5	0	No	Low-e glazing throughout
15.09	3	124	0	63	14	4.0	0	No	Low-e glazing to living area and master bedroom
15.10	3	122	0	59	17	4.0	0	No	None
16.01	2	85	0	64	12	4.0	0	No	Low-e glazing throughout
16.02	3	124	0	64	16	4.0	0	No	Low-e glazing to living area and master bedroom
16.03	3	126	0	60	12	4.5	0	No	Low-e glazing throughout
16.05	3	124	0	63	14	4.0	0	No	Low-e glazing to living area and master bedroom
16.06	3	122	0	59	17	4.0	0	No	None
17.01	2	85	0	60	12	4.5	0	No	Low-e glazing to living area only
17.02	3	124	0	64	15	4.0	0	No	Low-e glazing to living area and master bedroom
17.03	3	126	0	60	12	4.5	0	No	Low-e glazing throughout
17.05	3	124	0	63	14	4.0	0	No	Low-e glazing to living area and master bedroom
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18.01	2	85	0	60	12	4.5	0	No	Low-e glazing to living area only

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Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866				Accreditation #			VIC/BDAV/12/1473		
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18.05	3	124	0	63	14	4.0	0	No	Low-e glazing to living area and master bedroom
18.06	3	122	0	59	17	4.0	0	No	None
19.01	3	118	0	61	24	4.2	0	No	Low-e glazing throughout
19.02	4	156	0	66	20	4.2	0	No	Low-e glazing throughout R2.5 insulation to ceiling
19.05	4	156	0	60	28	4.0	0	No	Low-e glazing throughout
19.06	4	153	0	55	31	4.1	0	No	Low-e glazing throughout
Building B									
G.15	2	86	0	45	15	5.0	0	No	None
G.16	1	66	0	42	28	4.5	0	No	None
G.17	1	73	0	40	28	4.5	0	No	None
G.18	1	67	0	48	13	5.0	0	No	None
G.19	3	154	0	48	10	5.5	0	No	None
G.20	2	96	0	24	15	7.0	0	No	None
G.21	2	96	0	20	21	6.5	0	No	None
G.22	2	96	0	20	21	6.5	0	No	None
1.15	2	86	0	37	21	5.0	0	No	None
1.16	1	66	0	33	36	4.5	0	No	None
1.17	1	73	0	34	37	4.5	0	No	None
1.18	1	67	0	42	18	5.0	0	No	None
2.15	3	111	0	34	23	5.5	0	No	R1.2 floor insulation over car park
2.16	2	86	0	37	21	5.0	0	No	None
2.17	1	66	0	33	36	4.5	0	No	None
2.18	1	73	0	34	37	4.5	0	No	None
2.19	1	66	0	38	18	5.5	0	No	None
2.20	2	96	0	32	16	6.0	0	No	None
2.21	2	86	0	36	14	6.0	0	No	None
2.22	2	86	0	29	15	6.5	0	No	None
3.15	3	111	0	39	13	5.5	0	No	None
3.16	2	86	0	44	14	5.5	0	No	None
3.17	1	66	0	39	20	5.0	0	No	None
3.18	1	73	0	41	24	5.0	0	No	None
3.19	1	66	0	45	12	5.5	0	No	None

# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866					Accreditation #		VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
3.20	2	96	0	31	12	6.5	0	No	None
3.21	2	86	0	34	9	6.5	0	No	None
3.22	2	86	0	35	11	6.0	0	No	None
4.15	3	111	0	59	17	4.0	0	No	None
4.16	2	86	0	48	13	5.0	0	No	None
4.17	1	66	0	42	20	5.0	0	No	None
4.18	1	73	0	50	24	4.5	0	No	None
4.19	1	66	0	49	11	5.0	0	No	None
4.20	2	96	0	27	16	6.5	0	No	None
4.21	2	86	0	49	23	4.5	0	No	None
4.22	2	86	0	49	12	5.0	0	No	None
5.15	2	85	0	22	10	7.5	0	No	None
5.16	3	109	0	34	10	6.5	1	No	R1.2 floor insulation over car park
5.17	1	65	0	66	9	4.0	0	No	Low-e glazing throughout R1.2 floor insulation over car park
5.18	2	84	0	49	29	4.0	0	No	None
5.19	3	112	0	35	18	5.5	0	No	None
6.15	2	85	0	23	9	7.0	0	No	None
6.16	3	109	0	31	10	6.5	1	No	None
6.17	1	66	0	66	12	4.0	0	No	None
6.18	2	84	0	50	29	4.0	0	No	None
6.19	3	112	0	30	18	6.0	0	No	None
7.15	2	85	0	23	9	7.0	0	No	None
7.16	3	109	0	31	10	6.5	1	No	None
7.17	1	66	0	66	12	4.0	0	No	None
7.18	2	84	0	50	29	4.0	0	No	None
7.19	3	112	0	30	18	6.0	0	No	None
8.15	2	85	0	23	9	7.0	0	No	None
8.16	3	109	0	31	10	6.5	1	No	None
8.17	1	66	0	59	11	4.5	0	No	Low-e glazing to living area only
8.18	2	84	0	21	28	4.0	0	No	None
8.19	3	112	0	31	18	6.0	0	No	None
9.15	2	85	0	23	9	7.0	0	No	None
9.16	3	109	0	31	10	6.5	1	No	None
9.17	1	66	0	59	11	4.5	0	No	Low-e glazing to living area only
9.18	2	84	0	21	28	4.0	0	No	None



# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**



Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866				Accreditation #			VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
9.19	3	112	0	31	18	6.0	0	No	None
10.15	2	85	0	23	9	7.0	0	No	None
10.16	3	109	0	31	10	6.5	1	No	None
10.17	1	66	0	59	11	4.5	0	No	Low-e glazing to living area only
10.18	2	84	0	21	28	4.0	0	No	None
10.19	3	112	0	31	18	6.0	0	No	None
11.15	2	85	0	25	9	7.0	0	No	None
11.16	3	109	0	34	9	6.5	1	No	None
11.17	1	66	0	61	10	4.5	0	No	Low-e glazing to living area only
11.18	2	84	0	25	53	4.0	0	No	None
11.19	3	112	0	31	17	6.0	0	No	None
12.15	2	85	0	25	9	7.0	0	No	None
12.16	3	109	0	34	9	6.5	1	No	None
12.17	1	66	0	61	10	4.5	0	No	Low-e glazing to living area only
12.18	2	84	0	54	26	4.0	0	No	None
12.19	3	112	0	33	16	6.0	0	No	None
13.15	2	85	0	26	9	7.0	0	No	None
13.16	3	109	0	34	9	6.5	1	No	None
13.17	1	66	0	61	11	4.5	0	No	Low-e glazing to living area only
13.18	2	84	0	54	25	4.0	0	No	None
13.19	3	112	0	33	15	6.0	0	No	None
14.15	2	85	0	26	9	7.0	0	No	None
14.16	3	109	0	34	9	6.5	1	No	None
14.17	1	66	0	61	11	4.5	0	No	Low-e glazing to living area only
14.18	2	84	0	54	25	4.0	0	No	None
14.19	3	112	0	33	15	6.0	0	No	None
15.15	2	88	0	60	10	4.8	0	No	None
15.16	3	118	0	49	11	5.4	1	No	None
15.17	1	66	0	66	9	4.0	0	No	Low-e glazing throughout R2.5 insulation to ceiling
15.18	2	84	0	60	18	4.0	0	No	Low-e glazing to living area only
15.19	3	111	0	53	26	4.4	0	No	None
Building C									
G.26	2	96	0	20	21	6.5	0	No	None
G.27	2	96	0	20	21	6.5	0	No	None
G.28	2	96	0	20	21	6.5	0	No	None

# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866					Accreditation #		VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
G.29	2	96	0	22	21	6.5	0	No	None
G.30	1	66	0	36	11	6.0	0	No	None
G.31	3	109	0	28	23	6.0	0	No	None
G.32	1	66	0	55	14	4.5	0	No	None
1.26	1	68	0	38	12	6.0	0	No	None
1.27	3	109	0	23	29	5.5	0	No	None
1.28	1	66	0	44	20	5.0	0	No	None
1.29	1	66	0	42	20	5.0	0	No	None
2.26	2	86	0	28	14	6.5	0	No	None
2.27	2	86	0	31	15	6.0	0	No	None
2.28	2	82	0	36	13	6.0	0	No	None
2.29	1	66	0	37	16	6.0	0	No	None
2.30	3	109	0	23	29	5.5	0	No	None
2.31	1	66	0	44	20	5.0	0	No	None
2.32	1	66	0	42	20	5.0	0	No	None
2.33	3	111	0	32	17	6.0	0	No	None
3.26	2	86	0	34	9	6.5	0	No	None
3.27	2	86	0	35	11	6.0	0	No	None
3.28	2	82	0	30	9	7.0	0	No	None
3.29	1	66	0	43	11	5.5	0	No	None
3.30	3	109	0	28	19	6.0	0	No	None
3.31	1	66	0	52	14	5.0	0	No	None
3.32	1	66	0	50	15	5.0	0	No	None
3.33	3	111	0	38	12	6.0	0	No	None
4.26	2	86	0	49	12	5.0	0	No	None
4.27	2	86	0	49	12	5.0	0	No	None
4.28	2	82	0	32	8	6.5	0	No	None
4.29	1	66	0	35	20	5.5	0	No	None
4.30	3	108	0	35	18	5.5	0	No	None
4.31	1	66	0	55	14	4.5	0	No	None
4.32	1	66	0	53	14	4.5	0	No	None
4.33	3	111	0	58	15	4.5	0	No	None
5.26	2	85	0	30	10	6.5	0	No	None
5.27	3	111	0	27	18	6.5	0	No	None
5.28	1	66	0	63	14	4.0	0	No	None

# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**



Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866					Accreditation #		VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
5.29	2	84	0	32	14	6.0	0	No	Low-e glazing to living area only R1.2 floor insulation over car park
5.30	3	112	0	32	14	6.0	0	No	R1.2 floor insulation over car park
6.26	2	85	0	23	9	7.0	0	No	None
6.27	3	111	0	28	18	6.0	0	No	None
6.28	1	66	0	64	14	4.0	0	No	None
6.29	2	84	0	22	9	7.5	0	No	None
6.30	3	112	0	31	15	6.0	0	No	None
7.26	2	85	0	23	9	7.0	0	No	None
7.27	3	111	0	28	18	6.0	0	No	None
7.28	1	66	0	64	14	4.0	0	No	None
7.29	2	84	0	54	25	4.0	0	No	None
7.30	3	112	0	31	15	6.0	0	No	None
8.26	2	85	0	23	9	7.0	0	No	None
8.27	3	111	0	28	17	6.0	0	No	None
8.28	1	66	0	65	14	4.0	0	No	None
8.29	2	84	0	54	26	4.0	0	No	None
8.30	3	112	0	32	16	6.0	0	No	None
9.26	2	85	0	23	9	7.0	0	No	None
9.27	3	111	0	28	17	6.0	0	No	None
9.28	1	66	0	65	14	4.0	0	No	None
9.29	2	84	0	54	26	4.0	0	No	None
9.30	3	112	0	32	16	6.0	0	No	None
10.26	2	85	0	23	9	7.0	0	No	None
10.27	3	111	0	28	17	6.0	0	No	None
10.28	1	66	0	65	14	4.0	0	No	None
10.29	2	84	0	54	26	4.0	0	No	None
10.30	3	112	0	32	16	6.0	0	No	None
11.26	2	85	0	25	9	7.0	0	No	None
11.27	3	111	0	30	16	6.0	0	No	None
11.28	1	66	0	60	11	4.5	0	No	Low-e glazing to living area only
11.29	2	84	0	55	24	4.0	0	No	None
11.30	3	112	0	33	15	6.0	0	No	None
12.26	2	85	0	25	9	7.0	0	No	None
12.27	3	111	0	30	16	6.0	0	No	None
12.28	1	66	0	60	11	4.5	0	No	Low-e glazing to living area only

# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866					Accreditation #		VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
12.29	2	84	0	55	25	4.0	0	No	None
12.30	3	112	0	33	15	6.0	0	No	None
13.26	2	85	0	25	9	7.0	0	No	None
13.27	3	111	0	31	16	6.0	0	No	None
13.28	1	66	0	60	11	4.5	0	No	Low-e glazing to living area only
13.29	2	84	0	55	25	4.0	0	No	None
13.30	3	112	0	33	15	6.0	0	No	None
14.26	2	85	0	25	9	7.0	0	No	None
14.27	3	111	0	31	16	6.0	0	No	None
14.28	1	66	0	60	11	4.5	0	No	Low-e glazing to living area only
14.29	2	84	0	55	25	4.0	0	No	None
14.30	3	112	0	33	15	6.0	0	No	None
15.26	2	88	0	60	10	4.8	0	No	None
15.27	3	117	0	45	12	5.9	0	No	None
15.28	1	66	0	66	9	4.0	0	No	Low-e glazing throughout and R2.5 insulation to ceiling
15.29	2	84	0	66	22	4.0	0	No	R2.5 insulation to ceiling
15.30	3	111	0	53	26	4.4	0	No	None
Building D									
G.37	2	122	0	66	16	4.0	0	No	None
G.38	2	100	0	49	9	5.0	0	No	None
G.39	2	100	0	49	9	5.0	0	No	None
G.40	2	100	0	61	10	4.5	0	No	None
G.41	2	85	0	29	22	5.5	0	No	None
G.42	2	88	0	59	15	4.5	0	No	None
1.37	2	84	0	27	23	6.0	0	No	None
1.38	2	97	0	47	20	4.5	0	No	None
2.37	3	113	0	31	23	5.5	0	No	None
2.38	2	85	0	63	20	4.0	0	No	None
2.39	2	84	0	27	23	6.0	0	No	None
2.40	2	97	0	42	26	4.5	0	No	None
3.37	3	113	0	36	14	6.0	0	No	None
3.38	2	85	0	63	15	4.0	0	No	None
3.39	2	84	0	33	15	6.0	0	No	None
3.40	2	97	0	50	20	4.5	0	No	None
4.37	3	113	0	25	25	6.0	0	No	None

# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866				Accreditation #			VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
4.38	2	85	0	66	15	4.0	0	No	None
4.39	2	84	0	35	14	6.0	0	No	None
4.40	2	97	0	61	20	4.0	0	No	None
5.37	1	64	0	65	15	4.0	0	No	Low-e glazing throughout R1.2 floor insulation over car park
5.38	1	64	0	64	13	4.0	0	No	Low-e glazing throughout R1.2 floor insulation over car park
5.39	3	110	0	51	17	4.5	0	No	R1.2 floor insulation over car park
5.40	2	84	0	57	19	4.0	0	No	None
5.41	2	84	0	61	21	4.0	0	No	R1.2 floor insulation over car park
5.42	3	109	0	57	8	4.5	0	No	R1.2 floor insulation over car park
5.43	2	84	0	66	8	4.5	0	No	R1.2 floor insulation over car park
5.45	2	84	0	66	8	4.5	0	No	R1.2 floor insulation over car park
5.46	2	85	0	62	7	4.5	0	No	Low-glazing to living area only R1.2 floor insulation over car park
5.47	2	87	0	66	10	4.0	0	No	R1.2 floor insulation over car park
5.48	2	84	0	63	9	4.5	0	No	R1.2 floor insulation over car park
6.37	1	64	0	65	23	3.5	0	No	None
6.38	1	64	0	66	21	4.0	0	No	None
6.39	3	109	0	49	17	4.5	0	No	None
6.40	2	84	0	58	18	4.0	0	No	None
6.41	2	84	0	52	21	4.5	0	No	None
6.42	3	109	0	52	19	4.5	0	No	None
6.43	2	84	0	49	8	5.5	0	No	None
6.45	2	84	0	49	9	5.5	0	No	None
6.46	2	85	0	52	8	5.0	0	No	None
6.47	2	87	0	49	11	5.0	0	No	None
6.48	2	84	0	49	10	5.0	0	No	None
7.37	1	64	0	65	23	3.5	0	No	None
7.38	2	64	0	66	21	4.0	0	No	None
7.39	3	109	0	49	17	4.5	0	No	None
7.40	2	84	0	58	18	4.0	0	No	None
7.41	2	84	0	52	21	4.5	0	No	None
7.42	3	109	0	52	19	4.5	0	No	None
7.43	2	84	0	49	8	5.5	0	No	None
7.45	2	84	0	49	9	5.5	0	No	None
7.46	2	85	0	52	8	5.0	0	No	None



# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866				Accreditation #			VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
7.47	2	87	0	49	11	5.0	0	No	None
7.48	2	84	0	49	10	5.0	0	No	None
8.37	1	64	0	66	23	3.5	0	No	None
8.38	1	64	0	58	19	4.0	0	No	Low-e glazing to living area only
8.39	3	110	0	50	17	4.5	0	No	None
8.40	2	84	0	59	18	4.0	0	No	None
8.41	2	84	0	52	21	4.5	0	No	None
8.42	3	109	0	53	19	4.5	0	No	None
8.43	2	84	0	50	8	5.0	0	No	None
8.45	2	84	0	50	10	5.0	0	No	None
8.46	2	85	0	53	8	5.0	0	No	None
8.47	2	87	0	48	12	5.0	0	No	None
8.48	2	84	0	46	10	5.5	0	No	None
9.37	1	64	0	66	23	3.5	0	No	None
9.38	1	64	0	58	19	4.0	0	No	Low-e glazing to living area only
9.39	3	110	0	50	17	4.5	0	No	None
9.40	2	84	0	59	18	4.0	0	No	None
9.41	2	84	0	53	20	4.5	0	No	None
9.42	3	109	0	53	19	4.5	0	No	None
9.43	2	84	0	50	8	5.0	0	No	None
9.45	2	84	0	50	10	5.0	0	No	None
9.46	2	85	0	53	8	5.0	0	No	None
9.47	2	87	0	48	12	5.0	0	No	None
9.48	2	84	0	46	10	5.5	0	No	None
10.37	1	64	0	62	17	4.0	0	No	Low-e glazing to living area only
10.38	1	64	0	58	18	4.0	0	No	Low-e glazing to living area only
10.39	3	110	0	50	17	4.5	0	No	None
10.40	2	84	0	59	18	4.0	0	No	None
10.41	2	84	0	53	20	4.5	0	No	None
10.42	3	109	0	55	17	4.5	0	No	None
10.43	2	84	0	52	8	5.0	0	No	None
10.45	2	84	0	52	8	5.0	0	No	None
10.46	2	85	0	55	8	5.0	0	No	None
10.47	2	87	0	46	11	5.5	0	No	None
10.48	2	84	0	45	10	5.5	0	No	None
11.37	1	64	0	62	17	4.0	0	No	Low-e glazing to living area only

# Thermal Comfort Results

Proposed Residential Development  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**



13 of 15

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866				Accreditation #			VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
11.38	1	64	0	58	18	4.0	0	No	Low-e glazing to living area only
11.39	3	110	0	47	15	5.0	0	No	None
11.40	2	84	0	62	16	4.0	0	No	None
11.41	2	84	0	56	18	4.5	0	No	None
11.42	3	109	0	55	17	4.5	0	No	None
11.43	2	84	0	52	8	5.0	0	No	None
11.45	2	84	0	52	8	5.0	0	No	None
11.46	2	85	0	55	8	5.0	0	No	None
11.47	2	87	0	46	11	5.5	0	No	None
11.48	2	84	0	45	10	5.5	0	No	None
12.37	1	64	0	62	18	4.0	0	No	Low-e glazing to living area only
12.38	1	64	0	61	20	4.0	0	No	None
12.39	3	110	0	47	15	5.0	0	No	None
12.40	2	84	0	62	16	4.0	0	No	None
12.41	2	84	0	56	18	4.5	0	No	None
12.42	3	109	0	56	17	4.5	0	No	None
12.43	2	84	0	53	8	5.0	0	No	None
12.45	2	84	0	52	8	5.0	0	No	None
12.46	2	85	0	55	8	5.0	0	No	None
12.47	2	87	0	42	12	5.5	0	No	None
12.48	2	84	0	45	10	5.5	0	No	None
13.37	1	64	0	63	18	4.0	0	No	Low-e glazing to living area only
13.38	1	64	0	61	21	4.0	0	No	None
13.39	3	110	0	46	15	5.0	0	No	None
13.40	2	84	0	62	16	4.0	0	No	None
13.41	2	84	0	57	18	4.5	0	No	None
13.42	3	109	0	56	17	4.5	0	No	None
13.43	2	84	0	53	8	5.0	0	No	None
13.45	2	84	0	52	8	5.0	0	No	None
13.46	2	85	0	56	8	5.0	0	No	None
13.47	2	87	0	42	12	5.5	0	No	None
13.48	2	84	0	45	10	5.5	0	No	None
14.37	1	64	0	63	18	4.0	0	No	Low-e glazing to living area only
14.38	1	64	0	61	21	4.0	0	No	None
14.39	3	110	0	46	15	5.0	0	No	None
14.40	2	84	0	62	16	4.0	0	No	None

# Thermal Comfort Results

Proposed Residential Development  
UB 5W 130-150 Bunnerong Road  
Pagewood NSW 2036



Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866					Accreditation #		VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
14.41	2	84	0	57	18	4.5	0	No	None
14.42	3	109	0	56	17	4.5	0	No	None
14.43	2	84	0	53	8	5.0	0	No	None
14.45	2	84	0	52	8	5.0	0	No	None
14.4602	2	85	0	56	8	5.0	0	No	None
14.47	2	87	0	42	12	5.5	0	No	None
14.48	2	84	0	45	10	5.5	0	No	None
15.37	1	64	0	63	18	4.0	0	No	Low-e glazing to living area only
15.38	1	64	0	63	21	4.0	0	No	None
15.39	3	110	0	46	15	5.0	0	No	None
15.40	2	84	0	65	16	4.0	0	No	None
15.41	2	84	0	59	18	4.0	0	No	None
15.42	3	109	0	56	16	4.5	0	No	None
15.43	2	84	0	55	8	5.0	0	No	None
15.45	2	84	0	63	7	4.5	0	No	Low-e glazing to living area only
15.46	2	85	0	62	8	4.5	0	No	Low-e glazing to living area only R2.5 insulation to ceiling
15.47	2	87	0	58	12	4.5	0	No	None
15.48	2	84	0	59	9	4.5	0	No	None
16.37	3	124	0	59	18	4.0	0	No	Low-e glazing to living area only
16.38	3	125	0	56	15	4.5	0	No	None
16.39	3	126	0	66	12	4.0	0	No	Low-e glazing througout
16.40	3	124	0	52	12	4.5	0	No	Low-e glazing througout
16.41	2	84	0	64	12	4.0	0	No	Low-e glazing througout
17.37	3	125	0	66	18	4.0	0	No	None
17.38	3	125	0	57	15	4.5	0	No	None
17.39	3	126	0	57	12	4.5	0	No	Low-e glazing througout
17.40	3	124	0	56	13	4.5	0	No	Low-e glazing througout
17.41	2	84	0	64	12	4.0	0	No	Low-e glazing througout
18.37	3	125	0	66	18	4.0	0	No	None
18.38	3	125	0	57	15	4.5	0	No	None
18.39	3	126	0	57	12	4.5	0	No	Low-e glazing througout
18.40	3	124	0	56	13	4.5	0	No	Low-e glazing througout
18.41	2	84	0	64	12	4.0	0	No	Low-e glazing througout
19.37	4	153	0	55	26	4.3	0	No	Low-e glazing throughout
19.38	4	156	0	53	26	4.4	0	No	Low-e glazing throughout

**Thermal Comfort Results**  
**Proposed Residential Development**  
**UB 5W 130-150 Bunnerong Road**  
**Pagewood NSW 2036**



15 of 15

Issued in accordance with **BASIX** Thermal Comfort Simulation Method

Certificate # 14733866				Accreditation #			VIC/BDAV/12/1473		
Thermal performance specifications									
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Window in Bathroom	Window in Kitchen	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)				
19.40	4	156	0	64	20	4.2	0	No	Low-e glazing throughout
19.41	3	123	0	65	34	3.7	0	No	Low-e glazing throughout



# NatHERS Certificate

## New Dwelling



**5.0 Stars**

### Simulation Software

Software Name BERS Pro 4.2  
Software Version Release 110811/A  
Engine Version CHENATH V2.13

### Simulation Details

Project Name JK-100 unit 6.03 Building A\_1  
Date 25/01/2016  
Location PAGEWOOD PC 2035  
Climate file climat56.TXT  
Adjusted Star Rating 5.0 Stars  
Conditioned Area 84.90 m<sup>2</sup>  
Unconditioned Area 0.00 m<sup>2</sup>  
Adjusted Cooling 7.9 MJ/m<sup>2</sup>  
Adjusted Heating 50.6 MJ/m<sup>2</sup>  
Adjusted Total 58.5 MJ/m<sup>2</sup>

### Dwelling Address


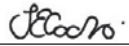
DP Number 1187426  
Unit Number  
Lot Number 2  
House Number  
Street Name 130-150 Bunnerong Road  
Development Name Urban Block 5W  
Suburb Pagewood NSW 2036

### Client Details

Name Meriton Group  
Phone 02 9287 2590 Fax 02 9287 2790  
Email  
Postal Address  
Street Details Level 11, Meriton Tower, 528 Kent Street, Sydney NSW 2000

### Assessor Details

Name Tracey Cools  
Phone 02 9970 6181 Fax 02 9970 6181  
Email admin@efficientliving.com.au  
Postal Address  
Street Details 13/13 Lagoon Street, Narrabeen NSW 2101

		<b>Energy Rating</b>		Certificate Number <b>14733866</b>	
<input type="checkbox"/>	single-dwelling rating		<b>5.0</b>	stars	
<input checked="" type="checkbox"/>	multi-unit development (attach listing of ratings)	heating	<b>49</b>	MJ/m <sup>2</sup>	
	<small>If selected, data specified is the average across the entire development</small>	cooling	<b>15</b>	MJ/m <sup>2</sup>	
Recessed downlights confirmation:		<input checked="" type="checkbox"/> Rated with	<input type="checkbox"/> Rated without		
Assessor Name/Number		Tracey Cools VIC/BDAV/12/1473			
Assessor Signature				Date	27/01/16

Signed by the Assessor..........Date.....27/01/16.....

*Tilted roof windows with blinds cannot be modelled using this version of BERSPro.  
All windows are modelled with Holland Blinds for regulatory purposes.*



## Building Element Details

Project JK-100 unit 6.03 Building A Run 1  
PAGEWOOD PC 2035 Lat -33.90 Long 151.20 Climate File climat56.TXT

### Summary

Conditioned Area	84.9 m <sup>2</sup>
Unconditioned Area	0.0 m <sup>2</sup>
Total Floor Area	84.9 m <sup>2</sup>
Total Glazed Area	23.5 m <sup>2</sup>
Total External Solid door Area	1.9 m <sup>2</sup>
Glass to Floor Area	27.7 %
Gross External Wall Area	127.1 m <sup>2</sup>
Net External Wall Area	101.7 m <sup>2</sup>

### Window

23.5 m<sup>2</sup> BGC-05-013a Affinity Windows Uval 6.83 SHGC 0.54  
Glass 5mm Grey  
Frame Aluminium 4-Lite Sliding Window - Single Glazed

### External Wall

36.0 m<sup>2</sup> Tilt up concrete, lined Bulk Insulation R 1.5  
47.3 m<sup>2</sup> PowerPanel to neighbour No Insulation  
1.0 m<sup>2</sup> PowerPanel Bulk Insulation R 1.7  
17.4 m<sup>2</sup> PowerPanel Bulk Insulation R 2.2

### Internal Wall

71.0 m<sup>2</sup> Cavity Panel 70mm gap No Insulation

### External Floor



30.5 m<sup>2</sup> Concrete Slab, Unit Below Carpet 10mm No Insulation  
12.5 m<sup>2</sup> Concrete Slab, Unit Below Ceramic Tiles 8mm No Insulation  
41.9 m<sup>2</sup> Concrete Slab, Unit Below 80/20 Carpet 10mm/Ceramic No Insulation

### External Ceiling

84.9 m<sup>2</sup> Plasterboard No Insulation Apartment above

### Roof (Horizontal area)

84.9 m<sup>2</sup> Concrete No Insulation, Only an Air Gap 0° slope Skillion roof

	<b>Energy Rating</b>	Certificate Number <b>14733866</b>
<input type="checkbox"/> single-dwelling rating		<b>5.0</b> stars
<input checked="" type="checkbox"/> multi-unit development (attach listing of ratings) <small>If selected, data specified is the average across the entire development</small>	heating <b>49</b> MJ/m <sup>2</sup> cooling <b>15</b> MJ/m <sup>2</sup>	
Recessed downlights confirmation:	<input checked="" type="checkbox"/> Rated with	<input type="checkbox"/> Rated without
Assessor Name/Number	<u>Tracey Cools VIC/BDAV/12/1473</u>	
Assessor Signature		Date <b>27/01/16</b>

# Nationwide House Energy Rating Scheme\* — Class 2 summary

Certificate number: **0001709890**

Certificate Date: **17 Jul 2017**

★ Average Star rating: **4.5**



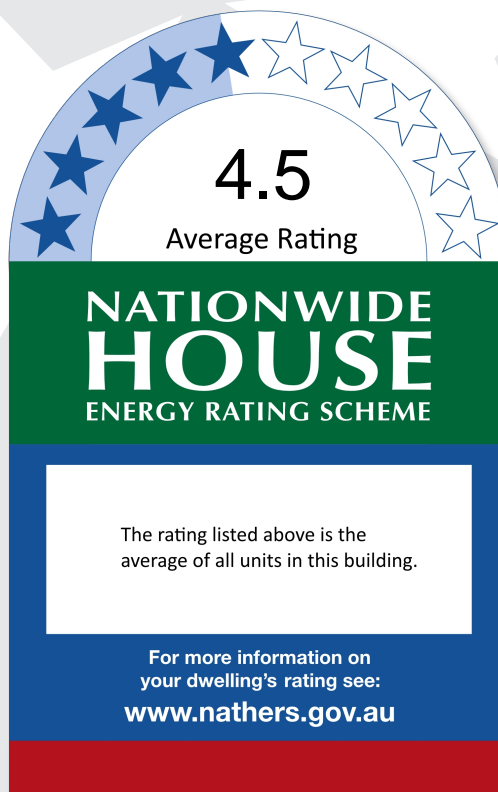
## Assessor details

Accreditation number: **VIC/BDAV/12/1473**  
Name: **Tracey Cools**  
Organisation: **Efficient Living**  
Email: **admin@efficientliving.com.au**  
Phone: **02 9970 6181**  
Declaration of interest: **None**  
Software: **BERS Pro v4.3.0.2a (3.13)**  
  
AAO: **BDAV**

## Dwelling details

Street: **130-150 Bunnerong Road**  
Suburb: **Pagewood**  
State: **NSW**  
Postcode: **2036**

Scan to access this certificate online and confirm this is valid.



## Summary of all dwellings

### Certificate Details

Certificate number	Unit number	Heating load	Cooling load	Total load	Star Rating
0001709757	15.15	60.0	10.0	70.0	4.8
0001709781	15.16	49.0	11.0	60.0	5.4
0001709815	15.19	53.0	26.0	79.0	4.4
0001709831	15.26	60.0	10.0	70.0	4.8
0001709864	15.27	45.0	12.0	56.0	5.7
0001709740	15.30	53.0	26.0	79.0	4.4
0001709765	19.01	67.0	22.0	89.0	3.9
0001709799	19.02	65.0	19.0	85.0	4.2
0001709823	19.05	60.0	28.0	88.0	4
0001709856	19.06	55.0	31.0	86.0	4.1
0001709732	19.37	55.0	26.0	81.0	4.3
0001709773	19.38	53.0	26.0	78.0	4.4
0001709807	19.40	64.0	20.0	85.0	4.2
0001709849	19.41	65.0	34.0	99.0	3.7

# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Multi Dwelling

Certificate number: 694301M\_03

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 18/09/2014 published by the Department. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

This certificate is a revision of certificate number 694301M lodged with the consent authority or certifier on 16 February 2016 with application DA2016/18.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Secretary

Date of issue: Monday, 17 July 2017

To be valid, this certificate must be lodged within 3 months of the date of issue.



### Project summary

Project name	Urban Block 5W - 130-150 Bunnerong R_03
Street address	130-150 Bunnerong Road Pagewood 2036
Local Government Area	Botany Bay City Council
Plan type and plan number	deposited 1187426
Lot no.	2
Section no.	-
No. of residential flat buildings	4
No. of units in residential flat buildings	485
No. of multi-dwelling houses	0
No. of single dwelling houses	0

### Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 23	Target 20

### Certificate Prepared by

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82 116 346 082

# Description of project

## Project address

Project name	Urban Block 5W - 130-150 Bunnerong R_03
Street address	130-150 Bunnerong Road Pagewood 2036
Local Government Area	Botany Bay City Council
Plan type and plan number	deposited 1187426
Lot no.	2
Section no.	-

## Project type

No. of residential flat buildings	4
No. of units in residential flat buildings	485
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m²)	11577
Roof area (m²)	1770
Non-residential floor area (m²)	536.0
Residential car spaces	783
Non-residential car spaces	33




## Common area landscape

Common area lawn (m²)	3469.0
Common area garden (m²)	1847.0
Area of indigenous or low water use species (m²)	0.0

## Assessor details

Assessor number	BDAV/12/1473
Certificate number	14733866
Climate zone	56

## Project score

Water	 40	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 23	Target 20

## Description of project

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

### Residential flat buildings - Building A, 144 dwellings, 20 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.01	2	98.0	0.0	0.0	0.0
2.03	2	92.0	0.0	0.0	0.0
3.03	2	92.0	0.0	0.0	0.0
4.03	2	92.0	0.0	0.0	0.0
5.03	2	85.0	0.0	0.0	0.0
5.08	1	64.0	0.0	0.0	0.0
6.01	2	84.0	0.0	0.0	0.0
6.06	2	84.0	0.0	0.0	0.0
6.10	3	124.0	0.0	0.0	0.0
7.03	2	87.0	0.0	0.0	0.0
7.08	1	64.0	0.0	0.0	0.0
8.01	2	84.0	0.0	0.0	0.0
8.06	2	84.0	0.0	0.0	0.0
8.10	3	124.0	0.0	0.0	0.0
9.03	2	85.0	0.0	0.0	0.0
9.08	1	64.0	0.0	0.0	0.0
G.01	2	111.0	0.0	0.0	0.0
G.06	1	96.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.02	2	85.0	0.0	0.0	0.0
2.05	3	111.0	0.0	0.0	0.0
3.05	3	111.0	0.0	0.0	0.0
4.05	3	111.0	0.0	0.0	0.0
5.05	2	84.0	0.0	0.0	0.0
5.09	1	64.0	0.0	0.0	0.0
6.02	2	87.0	0.0	0.0	0.0
6.07	3	124.0	0.0	0.0	0.0
6.11	3	122.0	0.0	0.0	0.0
7.05	2	84.0	0.0	0.0	0.0
7.09	1	64.0	0.0	0.0	0.0
8.02	2	87.0	0.0	0.0	0.0
8.07	3	124.0	0.0	0.0	0.0
8.11	3	122.0	0.0	0.0	0.0
9.05	2	84.0	0.0	0.0	0.0
9.09	1	64.0	0.0	0.0	0.0
G.02	2	96.0	0.0	0.0	0.0
10.01	2	84.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
2.01	2	98.0	0.0	0.0	0.0
3.01	2	98.0	0.0	0.0	0.0
4.01	2	98.0	0.0	0.0	0.0
5.01	2	84.0	0.0	0.0	0.0
5.06	2	84.0	0.0	0.0	0.0
5.10	3	124.0	0.0	0.0	0.0
6.03	2	85.0	0.0	0.0	0.0
6.08	1	64.0	0.0	0.0	0.0
7.01	2	84.0	0.0	0.0	0.0
7.06	2	84.0	0.0	0.0	0.0
7.10	3	124.0	0.0	0.0	0.0
8.03	2	85.0	0.0	0.0	0.0
8.08	1	64.0	0.0	0.0	0.0
9.01	2	84.0	0.0	0.0	0.0
9.06	3	84.0	0.0	0.0	0.0
9.10	3	124.0	0.0	0.0	0.0
G.03	2	96.0	0.0	0.0	0.0
10.02	2	87.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
2.02	2	85.0	0.0	0.0	0.0
3.02	2	85.0	0.0	0.0	0.0
4.02	2	85.0	0.0	0.0	0.0
5.02	2	87.0	0.0	0.0	0.0
5.07	3	124.0	0.0	0.0	0.0
5.11	3	122.0	0.0	0.0	0.0
6.05	2	84.0	0.0	0.0	0.0
6.09	1	64.0	0.0	0.0	0.0
7.02	2	87.0	0.0	0.0	0.0
7.07	3	124.0	0.0	0.0	0.0
7.11	3	122.0	0.0	0.0	0.0
8.05	2	84.0	0.0	0.0	0.0
8.09	1	64.0	0.0	0.0	0.0
9.02	2	87.0	0.0	0.0	0.0
9.07	3	124.0	0.0	0.0	0.0
9.11	3	122.0	0.0	0.0	0.0
G.05	2	96.0	0.0	0.0	0.0
10.03	2	85.0	0.0	0.0	0.0



Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
10.05	2	84.0	0.0	0.0	0.0
10.09	1	64.0	0.0	0.0	0.0
11.02	2	87.0	0.0	0.0	0.0
11.07	3	124.0	0.0	0.0	0.0
11.11	3	122.0	0.0	0.0	0.0
12.05	2	84.0	0.0	0.0	0.0
12.09	3	124.0	0.0	0.0	0.0
13.03	2	85.0	0.0	0.0	0.0
13.08	3	126.0	0.0	0.0	0.0
14.02	2	87.0	0.0	0.0	0.0
14.07	3	124.0	0.0	0.0	0.0
15.01	2	84.0	0.0	0.0	0.0
15.06	2	84.0	0.0	0.0	0.0
15.10	3	122.0	0.0	0.0	0.0
16.05	3	124.0	0.0	0.0	0.0
17.03	3	126.0	0.0	0.0	0.0
18.02	3	124.0	0.0	0.0	0.0
19.01	3	118.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
10.06	2	84.0	0.0	0.0	0.0
10.10	3	124.0	0.0	0.0	0.0
11.03	2	85.0	0.0	0.0	0.0
11.08	1	64.0	0.0	0.0	0.0
12.01	2	84.0	0.0	0.0	0.0
12.06	2	84.0	0.0	0.0	0.0
12.10	3	122.0	0.0	0.0	0.0
13.05	2	84.0	0.0	0.0	0.0
13.09	3	124.0	0.0	0.0	0.0
14.03	2	85.0	0.0	0.0	0.0
14.08	3	126.0	0.0	0.0	0.0
15.02	2	87.0	0.0	0.0	0.0
15.07	3	124.0	0.0	0.0	0.0
16.01	2	85.0	0.0	0.0	0.0
16.06	3	122.0	0.0	0.0	0.0
17.05	3	124.0	0.0	0.0	0.0
18.03	3	126.0	0.0	0.0	0.0
19.02	4 or more bedrooms	156.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
10.07	3	124.0	0.0	0.0	0.0
10.11	3	122.0	0.0	0.0	0.0
11.05	2	84.0	0.0	0.0	0.0
11.09	1	64.0	0.0	0.0	0.0
12.02	2	87.0	0.0	0.0	0.0
12.07	3	124.0	0.0	0.0	0.0
13.01	2	84.0	0.0	0.0	0.0
13.06	2	84.0	0.0	0.0	0.0
13.10	3	122.0	0.0	0.0	0.0
14.05	2	84.0	0.0	0.0	0.0
14.09	3	124.0	0.0	0.0	0.0
15.03	2	85.0	0.0	0.0	0.0
15.08	3	126.0	0.0	0.0	0.0
16.02	3	124.0	0.0	0.0	0.0
17.01	2	85.0	0.0	0.0	0.0
17.06	3	122.0	0.0	0.0	0.0
18.05	3	124.0	0.0	0.0	0.0
19.05	4 or more bedrooms	156.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
10.08	1	64.0	0.0	0.0	0.0
11.01	2	84.0	0.0	0.0	0.0
11.06	2	84.0	0.0	0.0	0.0
11.10	3	124.0	0.0	0.0	0.0
12.03	2	85.0	0.0	0.0	0.0
12.08	3	126.0	0.0	0.0	0.0
13.02	2	87.0	0.0	0.0	0.0
13.07	3	124.0	0.0	0.0	0.0
14.01	2	84.0	0.0	0.0	0.0
14.06	2	84.0	0.0	0.0	0.0
14.10	3	122.0	0.0	0.0	0.0
15.05	2	84.0	0.0	0.0	0.0
15.09	3	124.0	0.0	0.0	0.0
16.03	3	126.0	0.0	0.0	0.0
17.02	3	124.0	0.0	0.0	0.0
18.01	2	85.0	0.0	0.0	0.0
18.06	3	122.0	0.0	0.0	0.0
19.06	4 or more bedrooms	153.0	0.0	0.0	0.0

### Residential flat buildings - Building B, 91 dwellings, 20 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.15	2	86.0	0.0	0.0	0.0
2.15	3	111.0	0.0	0.0	0.0
2.19	1	66.0	0.0	0.0	0.0
3.15	3	111.0	0.0	0.0	0.0
3.19	1	66.0	0.0	0.0	0.0
4.15	3	111.0	0.0	0.0	0.0
4.19	1	66.0	0.0	0.0	0.0
5.15	2	85.0	0.0	0.0	0.0
5.19	3	112.0	0.0	0.0	0.0
6.18	2	84.0	0.0	0.0	0.0
7.17	1	66.0	0.0	0.0	0.0
8.16	3	109.0	0.0	0.0	0.0
9.15	2	85.0	0.0	0.0	0.0
9.19	3	112.0	0.0	0.0	0.0
G.18	1	67.0	0.0	0.0	0.0
G.22	2	96.0	0.0	0.0	0.0
10.18	2	84.0	0.0	0.0	0.0
11.17	1	66.0	0.0	0.0	0.0
12.16	3	109.0	0.0	0.0	0.0
13.15	2	85.0	0.0	0.0	0.0
13.19	3	112.0	0.0	0.0	0.0
14.18	2	84.0	0.0	0.0	0.0
15.17	1	66.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.16	1	66.0	0.0	0.0	0.0
2.16	2	86.0	0.0	0.0	0.0
2.20	2	96.0	0.0	0.0	0.0
3.16	2	86.0	0.0	0.0	0.0
3.20	2	96.0	0.0	0.0	0.0
4.16	2	86.0	0.0	0.0	0.0
4.20	2	96.0	0.0	0.0	0.0
5.16	3	109.0	0.0	0.0	0.0
6.15	2	85.0	0.0	0.0	0.0
6.19	3	112.0	0.0	0.0	0.0
7.18	2	84.0	0.0	0.0	0.0
8.17	1	66.0	0.0	0.0	0.0
9.16	3	109.0	0.0	0.0	0.0
G.15	2	86.0	0.0	0.0	0.0
G.19	3	154.0	0.0	0.0	0.0
10.15	2	85.0	0.0	0.0	0.0
10.19	3	112.0	0.0	0.0	0.0
11.18	2	84.0	0.0	0.0	0.0
12.17	1	66.0	0.0	0.0	0.0
13.16	3	109.0	0.0	0.0	0.0
14.15	2	85.0	0.0	0.0	0.0
14.19	3	112.0	0.0	0.0	0.0
15.18	2	84.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.17	1	73.0	0.0	0.0	0.0
2.17	1	66.0	0.0	0.0	0.0
2.21	2	86.0	0.0	0.0	0.0
3.17	1	66.0	0.0	0.0	0.0
3.21	2	86.0	0.0	0.0	0.0
4.17	1	66.0	0.0	0.0	0.0
4.21	2	86.0	0.0	0.0	0.0
5.17	1	65.0	0.0	0.0	0.0
6.16	3	109.0	0.0	0.0	0.0
7.15	2	85.0	0.0	0.0	0.0
7.19	3	112.0	0.0	0.0	0.0
8.18	2	84.0	0.0	0.0	0.0
9.17	1	66.0	0.0	0.0	0.0
G.16	1	66.0	0.0	0.0	0.0
G.20	2	96.0	0.0	0.0	0.0
10.16	3	109.0	0.0	0.0	0.0
11.15	2	85.0	0.0	0.0	0.0
11.19	3	112.0	0.0	0.0	0.0
12.18	2	84.0	0.0	0.0	0.0
13.17	1	66.0	0.0	0.0	0.0
14.16	3	109.0	0.0	0.0	0.0
15.15	2	88.0	0.0	0.0	0.0
15.19	3	111.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.18	1	67.0	0.0	0.0	0.0
2.18	1	73.0	0.0	0.0	0.0
2.22	2	86.0	0.0	0.0	0.0
3.18	1	73.0	0.0	0.0	0.0
3.22	2	86.0	0.0	0.0	0.0
4.18	1	73.0	0.0	0.0	0.0
4.22	2	86.0	0.0	0.0	0.0
5.18	2	84.0	0.0	0.0	0.0
6.17	1	66.0	0.0	0.0	0.0
7.16	3	109.0	0.0	0.0	0.0
8.15	2	85.0	0.0	0.0	0.0
8.19	3	112.0	0.0	0.0	0.0
9.18	2	84.0	0.0	0.0	0.0
G.17	1	73.0	0.0	0.0	0.0
G.21	2	96.0	0.0	0.0	0.0
10.17	1	66.0	0.0	0.0	0.0
11.16	3	109.0	0.0	0.0	0.0
12.15	2	85.0	0.0	0.0	0.0
12.19	3	112.0	0.0	0.0	0.0
13.18	2	84.0	0.0	0.0	0.0
14.17	1	66.0	0.0	0.0	0.0
15.16	3	118.0	0.0	0.0	0.0

# Residential flat buildings - Building C, 90 dwellings, 16 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.26	1	68.0	0.0	0.0	0.0
2.26	2	86.0	0.0	0.0	0.0
2.30	3	109.0	0.0	0.0	0.0
3.26	2	86.0	0.0	0.0	0.0
3.30	3	109.0	0.0	0.0	0.0
4.26	2	86.0	0.0	0.0	0.0
4.30	3	108.0	0.0	0.0	0.0
5.26	2	85.0	0.0	0.0	0.0
5.30	3	112.0	0.0	0.0	0.0
6.29	2	84.0	0.0	0.0	0.0
7.28	1	66.0	0.0	0.0	0.0
8.27	3	111.0	0.0	0.0	0.0
9.26	2	85.0	0.0	0.0	0.0
9.30	3	112.0	0.0	0.0	0.0
G.29	2	96.0	0.0	0.0	0.0
10.26	2	85.0	0.0	0.0	0.0
10.30	3	112.0	0.0	0.0	0.0
11.29	2	84.0	0.0	0.0	0.0
12.28	1	66.0	0.0	0.0	0.0
13.27	3	111.0	0.0	0.0	0.0
14.26	2	85.0	0.0	0.0	0.0
Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.27	3	109.0	0.0	0.0	0.0
2.27	2	86.0	0.0	0.0	0.0
2.31	1	66.0	0.0	0.0	0.0
3.27	2	86.0	0.0	0.0	0.0
3.31	1	66.0	0.0	0.0	0.0
4.27	2	86.0	0.0	0.0	0.0
4.31	1	66.0	0.0	0.0	0.0
5.27	3	111.0	0.0	0.0	0.0
6.26	2	85.0	0.0	0.0	0.0
6.30	3	112.0	0.0	0.0	0.0
7.29	2	84.0	0.0	0.0	0.0
8.28	1	66.0	0.0	0.0	0.0
9.27	3	111.0	0.0	0.0	0.0
G.26	2	96.0	0.0	0.0	0.0
G.30	1	66.0	0.0	0.0	0.0
10.27	3	111.0	0.0	0.0	0.0
11.26	2	85.0	0.0	0.0	0.0
11.30	3	112.0	0.0	0.0	0.0
12.29	2	84.0	0.0	0.0	0.0
13.28	1	66.0	0.0	0.0	0.0
14.27	3	111.0	0.0	0.0	0.0
Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.28	1	66.0	0.0	0.0	0.0
2.28	2	82.0	0.0	0.0	0.0
2.32	1	66.0	0.0	0.0	0.0
3.28	2	82.0	0.0	0.0	0.0
3.32	1	66.0	0.0	0.0	0.0
4.28	2	82.0	0.0	0.0	0.0
4.32	1	66.0	0.0	0.0	0.0
5.28	1	66.0	0.0	0.0	0.0
6.27	3	111.0	0.0	0.0	0.0
7.26	2	85.0	0.0	0.0	0.0
7.30	3	112.0	0.0	0.0	0.0
8.29	2	84.0	0.0	0.0	0.0
9.28	1	66.0	0.0	0.0	0.0
G.27	2	96.0	0.0	0.0	0.0
G.31	3	109.0	0.0	0.0	0.0
10.28	1	66.0	0.0	0.0	0.0
11.27	3	111.0	0.0	0.0	0.0
12.26	2	85.0	0.0	0.0	0.0
12.30	3	112.0	0.0	0.0	0.0
13.29	2	84.0	0.0	0.0	0.0
14.28	1	66.0	0.0	0.0	0.0
Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.29	1	66.0	0.0	0.0	0.0
2.29	1	66.0	0.0	0.0	0.0
2.33	3	111.0	0.0	0.0	0.0
3.29	1	66.0	0.0	0.0	0.0
3.33	3	111.0	0.0	0.0	0.0
4.29	1	66.0	0.0	0.0	0.0
4.33	3	111.0	0.0	0.0	0.0
5.29	2	84.0	0.0	0.0	0.0
6.28	1	66.0	0.0	0.0	0.0
7.27	3	111.0	0.0	0.0	0.0
8.26	2	85.0	0.0	0.0	0.0
8.30	3	112.0	0.0	0.0	0.0
9.29	2	84.0	0.0	0.0	0.0
G.28	2	96.0	0.0	0.0	0.0
G.32	1	66.0	0.0	0.0	0.0
10.29	2	84.0	0.0	0.0	0.0
11.28	1	66.0	0.0	0.0	0.0
12.27	3	111.0	0.0	0.0	0.0
13.26	2	85.0	0.0	0.0	0.0
13.30	3	112.0	0.0	0.0	0.0
14.29	2	84.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
14.30	3	112.0	0.0	0.0	0.0
15.29	2	84.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
15.26	2	88.0	0.0	0.0	0.0
15.30	3	111.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
15.27	3	117.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
15.28	1	66.0	0.0	0.0	0.0

### Residential flat buildings - Building D, 160 dwellings, 16 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.37	2	84.0	0.0	0.0	0.0
2.39	2	84.0	0.0	0.0	0.0
3.39	2	84.0	0.0	0.0	0.0
4.39	2	84.0	0.0	0.0	0.0
5.39	3	110.0	0.0	0.0	0.0
5.43	2	84.0	0.0	0.0	0.0
5.48	2	84.0	0.0	0.0	0.0
6.40	2	84.0	0.0	0.0	0.0
6.45	2	84.0	0.0	0.0	0.0
7.37	1	64.0	0.0	0.0	0.0
7.41	2	84.0	0.0	0.0	0.0
7.46	2	85.0	0.0	0.0	0.0
8.38	1	64.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
1.38	2	97.0	0.0	0.0	0.0
2.40	2	97.0	0.0	0.0	0.0
3.40	2	97.0	0.0	0.0	0.0
4.40	2	97.0	0.0	0.0	0.0
5.40	2	84.0	0.0	0.0	0.0
5.45	2	84.0	0.0	0.0	0.0
6.37	1	64.0	0.0	0.0	0.0
6.41	2	84.0	0.0	0.0	0.0
6.46	2	85.0	0.0	0.0	0.0
7.38	2	64.0	0.0	0.0	0.0
7.42	3	109.0	0.0	0.0	0.0
7.47	2	87.0	0.0	0.0	0.0
8.39	3	110.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
2.37	3	113.0	0.0	0.0	0.0
3.37	3	113.0	0.0	0.0	0.0
4.37	3	113.0	0.0	0.0	0.0
5.37	1	64.0	0.0	0.0	0.0
5.41	3	84.0	0.0	0.0	0.0
5.46	2	85.0	0.0	0.0	0.0
6.38	1	64.0	0.0	0.0	0.0
6.42	3	109.0	0.0	0.0	0.0
6.47	2	87.0	0.0	0.0	0.0
7.39	3	109.0	0.0	0.0	0.0
7.43	2	84.0	0.0	0.0	0.0
7.48	2	84.0	0.0	0.0	0.0
8.40	2	84.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
2.38	2	85.0	0.0	0.0	0.0
3.38	2	85.0	0.0	0.0	0.0
4.38	2	85.0	0.0	0.0	0.0
5.38	1	64.0	0.0	0.0	0.0
5.42	3	109.0	0.0	0.0	0.0
5.47	2	87.0	0.0	0.0	0.0
6.39	3	109.0	0.0	0.0	0.0
6.43	2	84.0	0.0	0.0	0.0
6.48	2	84.0	0.0	0.0	0.0
7.40	2	84.0	0.0	0.0	0.0
7.45	2	84.0	0.0	0.0	0.0
8.37	1	64.0	0.0	0.0	0.0
8.41	2	84.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
8.42	3	109.0	0.0	0.0	0.0
8.47	2	87.0	0.0	0.0	0.0
9.39	3	110.0	0.0	0.0	0.0
9.43	2	84.0	0.0	0.0	0.0
9.48	2	84.0	0.0	0.0	0.0
G.40	2	100.0	0.0	0.0	0.0
10.38	1	64.0	0.0	0.0	0.0
10.42	3	109.0	0.0	0.0	0.0
10.47	2	87.0	0.0	0.0	0.0
11.39	3	110.0	0.0	0.0	0.0
11.43	2	84.0	0.0	0.0	0.0
11.48	2	84.0	0.0	0.0	0.0
12.40	2	84.0	0.0	0.0	0.0
12.45	2	84.0	0.0	0.0	0.0
13.37	1	64.0	0.0	0.0	0.0
13.41	2	84.0	0.0	0.0	0.0
13.46	2	85.0	0.0	0.0	0.0
14.38	1	64.0	0.0	0.0	0.0
14.42	3	109.0	0.0	0.0	0.0
14.47	2	87.0	0.0	0.0	0.0
15.39	3	110.0	0.0	0.0	0.0
15.43	2	84.0	0.0	0.0	0.0
15.48	2	84.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
8.43	2	84.0	0.0	0.0	0.0
8.48	2	84.0	0.0	0.0	0.0
9.40	2	84.0	0.0	0.0	0.0
9.45	2	84.0	0.0	0.0	0.0
G.37	2	122.0	0.0	0.0	0.0
G.41	2	85.0	0.0	0.0	0.0
10.39	3	110.0	0.0	0.0	0.0
10.43	2	84.0	0.0	0.0	0.0
10.48	2	84.0	0.0	0.0	0.0
11.40	2	84.0	0.0	0.0	0.0
11.45	2	84.0	0.0	0.0	0.0
12.37	1	64.0	0.0	0.0	0.0
12.41	2	84.0	0.0	0.0	0.0
12.46	2	85.0	0.0	0.0	0.0
13.38	1	64.0	0.0	0.0	0.0
13.42	3	109.0	0.0	0.0	0.0
13.47	1	87.0	0.0	0.0	0.0
14.39	3	110.0	0.0	0.0	0.0
14.43	2	84.0	0.0	0.0	0.0
14.48	2	84.0	0.0	0.0	0.0
15.40	2	84.0	0.0	0.0	0.0
15.45	2	84.0	0.0	0.0	0.0
16.37	3	124.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
8.45	2	84.0	0.0	0.0	0.0
9.37	1	64.0	0.0	0.0	0.0
9.41	2	84.0	0.0	0.0	0.0
9.46	2	85.0	0.0	0.0	-
G.38	2	100.0	0.0	0.0	0.0
G.42	2	88.0	0.0	0.0	0.0
10.40	2	84.0	0.0	0.0	0.0
10.45	2	84.0	0.0	0.0	0.0
11.37	1	64.0	0.0	0.0	0.0
11.41	2	84.0	0.0	0.0	0.0
11.46	2	85.0	0.0	0.0	0.0
12.38	1	64.0	0.0	0.0	0.0
12.42	3	109.0	0.0	0.0	0.0
12.47	2	87.0	0.0	0.0	0.0
13.39	3	110.0	0.0	0.0	0.0
13.43	2	84.0	0.0	0.0	0.0
13.48	2	84.0	0.0	0.0	0.0
14.40	2	84.0	0.0	0.0	0.0
14.45	2	84.0	0.0	0.0	0.0
15.37	1	64.0	0.0	0.0	0.0
15.41	2	84.0	0.0	0.0	0.0
15.46	2	85.0	0.0	0.0	0.0
16.38	3	125.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
8.46	2	85.0	0.0	0.0	0.0
9.38	1	64.0	0.0	0.0	0.0
9.42	3	109.0	0.0	0.0	0.0
9.47	2	87.0	0.0	0.0	0.0
G.39	2	100.0	0.0	0.0	0.0
10.37	1	64.0	0.0	0.0	0.0
10.41	2	84.0	0.0	0.0	0.0
10.46	2	85.0	0.0	0.0	0.0
11.38	3	64.0	0.0	0.0	0.0
11.42	3	109.0	0.0	0.0	0.0
11.47	2	87.0	0.0	0.0	0.0
12.39	3	110.0	0.0	0.0	0.0
12.43	2	84.0	0.0	0.0	0.0
12.48	2	84.0	0.0	0.0	0.0
13.40	2	84.0	0.0	0.0	0.0
13.45	2	84.0	0.0	0.0	0.0
14.37	1	64.0	0.0	0.0	0.0
14.41	2	84.0	0.0	0.0	0.0
14.46	2	85.0	0.0	0.0	0.0
15.38	2	64.0	0.0	0.0	0.0
15.42	3	109.0	0.0	0.0	0.0
15.47	2	87.0	0.0	0.0	0.0
16.39	3	126.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
16.40	3	124.0	0.0	0.0	0.0
17.39	3	126.0	0.0	0.0	0.0
18.38	3	125.0	0.0	0.0	0.0
19.37	4 or more bedrooms	153.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
16.41	2	84.0	0.0	0.0	0.0
17.40	3	124.0	0.0	0.0	0.0
18.39	3	126.0	0.0	0.0	0.0
19.38	4 or more bedrooms	156.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
17.37	3	125.0	0.0	0.0	0.0
17.41	2	84.0	0.0	0.0	0.0
18.40	3	124.0	0.0	0.0	0.0
19.40	4 or more bedrooms	156.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
17.38	3	125.0	0.0	0.0	0.0
18.37	3	125.0	0.0	0.0	0.0
18.41	2	84.0	0.0	0.0	0.0
19.41	3	123.0	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 - Building A

Common area	Floor area (m <sup>2</sup> )
Lift car (No.1)	-
Ground floor lobby - building A	96.0

Common area	Floor area (m <sup>2</sup> )
Lift car (No.2)	-
Hallway - building A	1320.0

Common area	Floor area (m <sup>2</sup> )
Lift car (No.3)	-

### Common areas of unit building - Building B

Common area	Floor area (m <sup>2</sup> )
Lift car (No.4)	-
Hallway - building B	887.0

Common area	Floor area (m <sup>2</sup> )
Lift car (No.5)	-

Common area	Floor area (m <sup>2</sup> )
Ground floor lobby - building B	128.0

### Common areas of unit building - Building C

Common area	Floor area (m <sup>2</sup> )
Lift car (No.6)	-
Hallway - building C	977.0

Common area	Floor area (m <sup>2</sup> )
Lift car (No.7)	-

Common area	Floor area (m <sup>2</sup> )
Ground floor lobby - building C	110.0

### Common areas of unit building - Building D

Common area	Floor area (m <sup>2</sup> )
Lift car (No.8)	-
Ground floor lobby - building D	103.0

Common area	Floor area (m <sup>2</sup> )
Lift car (No.9)	-
Hallways - building D	1386.0

Common area	Floor area (m <sup>2</sup> )
Lift car (No.10)	-

### Common areas of the development (non-building specific)

Common area	Floor area (m²)
Communal Facilities	604.0
Garbage rooms & bin shoots	1141.0

Common area	Floor area (m²)
Changing rooms	30.0
Plant or service room	256.0

Common area	Floor area (m²)
Car park area	20889.0

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - Building A

### (a) Dwellings

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

### (b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

## 2. Commitments for Residential flat buildings - Building B

### (a) Dwellings

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

### (b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

## 3. Commitments for Residential flat buildings - Building C

### (a) Dwellings

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

### (b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

## 4. Commitments for Residential flat buildings - Building D

### (a) Dwellings

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

(b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

5. Commitments for multi-dwelling houses

6. Commitments for single dwelling houses

7. 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 Residential flat buildings - Building A

#### (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)	4 star	4 star	4 star	no	-	4 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
None	-	-	-	-	-	-	-	-

(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.		✓	✓



<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (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 (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.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (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 (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, not ducted	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
5.08, 6.08, 6.09, 7.08, 7.09, 8.08, 8.09, 9.08, 9.09, G.06, 10.08, 10.09, 11.08, 11.09	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1	1	yes	yes	yes	yes	0	no

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
2.05, 3.05, 4.05, 5.07, 5.10, 5.11, 6.07, 6.10, 6.11, 7.07, 7.10, 7.11, 8.07, 8.10, 8.11, 9.06, 9.07, 9.10, 9.11, 10.07, 10.10, 10.11, 11.07, 11.10, 11.11, 12.07, 12.08, 12.09, 12.10, 13.07, 13.08, 13.09, 13.10, 14.07, 14.08, 14.09, 14.10, 15.07, 15.08,	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	3	1	yes	yes	yes	yes	0	no

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
15.09, 15.10, 16.02, 16.03, 16.05, 16.06, 17.02, 17.03, 17.05, 17.06, 18.02, 18.03, 18.05, 18.06, 19.02, 19.05, 19.06												
All other dwellings	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	2	1	yes	yes	yes	yes	0	no

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	-	yes	3 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 <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
2.03	59.0	20.0
2.05	34.0	21.0
3.01	48.0	20.0
3.02	40.0	14.0
3.05	56.0	14.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
4.01	47.0	21.0
4.02	38.0	17.0
4.05	39.0	13.0
5.01	55.0	9.0
5.02	58.0	11.0
5.03	62.0	6.0
5.05	66.0	9.0
5.06	64.0	8.0
5.07	62.0	18.0
5.08	55.0	18.0
5.09	61.0	16.0
5.10	66.0	15.0
7.10	65.0	16.0
G.01	54.0	18.0
G.02	29.0	11.0
G.03	30.0	11.0
G.05	31.0	9.0
G.06	46.0	24.0
11.01	45.0	9.0
11.08	57.0	17.0
11.10	65.0	14.0
12.01	46.0	9.0
12.06	53.0	8.0
15.01	58.0	8.0
15.03	65.0	7.0
15.05	62.0	7.0
15.06	54.0	8.0



	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
16.01	64.0	12.0
19.01	61.0	24.0
19.02	66.0	20.0
19.05	60.0	28.0
19.06	55.0	31.0
1.01, 2.01	41.0	28.0
1.02, 2.02	30.0	26.0
4.03, 5.11	65.0	17.0
6.01, 7.01	42.0	10.0
6.02, 7.02	43.0	12.0
6.05, 7.05	49.0	8.0
6.07, 7.07	63.0	17.0
6.08, 7.08	65.0	23.0
6.11, 7.11	58.0	19.0
13.01, 14.01	44.0	9.0
13.07, 14.07	60.0	16.0
13.10, 14.10	57.0	19.0
15.07, 16.02	64.0	16.0
17.02, 18.02	64.0	15.0
6.09, 6.10, 7.09	62.0	16.0
8.01, 9.01, 10.01	43.0	10.0
8.02, 9.02, 10.02	43.0	11.0
8.05, 9.05, 10.05	50.0	8.0
8.07, 9.07, 10.07	64.0	17.0
8.08, 9.08, 10.08	66.0	23.0
8.11, 9.11, 10.11	59.0	19.0
3.03, 11.11, 12.10	62.0	17.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
11.07, 11.09, 12.07	66.0	16.0
11.03, 12.03, 13.03, 14.03	54.0	7.0
11.05, 12.05, 13.05, 14.05	52.0	8.0
15.10, 16.06, 17.06, 18.06	59.0	17.0
6.06, 7.06, 8.06, 9.06, 10.06	48.0	9.0
11.02, 12.02, 13.02, 14.02, 15.02	45.0	11.0
8.09, 8.10, 9.09, 9.10, 10.09, 10.10	63.0	15.0
12.09, 13.09, 14.09, 15.09, 16.05, 17.05, 18.05	63.0	14.0
6.03, 7.03, 8.03, 9.03, 10.03, 11.06, 13.06, 14.06	51.0	8.0
All other dwellings	60.0	12.0

**(b) Common areas and central systems/facilities**

<b>(i) Water</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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.		✓	✓

<b>Common area</b>	<b>Showerheads rating</b>	<b>Toilets rating</b>	<b>Taps rating</b>	<b>Clothes washers rating</b>
All common areas	3 star (> 6 but <= 7.5 L/min)	4 star	4 star	no common laundry facility

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.2)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.3)	-	-	light-emitting diode	connected to lift call button	No
Ground floor lobby - building A	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No
Hallway - building A	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 20
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 20
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 20

## 2. Commitments for Residential flat buildings - Building B

### (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)	4 star	4 star	4 star	no	-	4 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
None	-	-	-	-	-	-	-	-

(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.		✓	✓

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (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 (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.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (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 (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, not ducted	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
1.16, 1.17, 1.18, 2.17, 2.18, 2.19, 3.17, 3.18, 3.19, 4.17, 4.18, 4.19, 5.17, 6.17, 7.17, 8.17, 9.17, G.16, G.17, G.18, 10.17, 11.17, 12.17, 13.17, 14.17, 15.17	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1	1	yes	yes	yes	yes	0	no



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
2.15, 3.15, 4.15, 5.16, 5.19, 6.16, 6.19, 7.16, 7.19, 8.16, 8.19, 9.16, 9.19, G.19, 10.16, 10.19, 11.16, 11.19, 12.16, 12.19, 13.16, 13.19, 14.16, 14.19, 15.16, 15.19	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	3	1	yes	yes	yes	yes	0	no
All other dwellings	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	2	1	yes	yes	yes	yes	0	no

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	-	yes	3 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/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
1.18	42.0	18.0
2.15	34.0	23.0
2.19	38.0	18.0
2.20	32.0	16.0
2.21	36.0	14.0
2.22	29.0	15.0
3.15	39.0	13.0
3.16	44.0	14.0
3.17	39.0	20.0
3.18	41.0	24.0
3.19	45.0	12.0
3.20	31.0	12.0
3.22	35.0	11.0
4.15	59.0	17.0
4.17	42.0	20.0
4.18	50.0	24.0
4.20	27.0	16.0
4.21	49.0	23.0
4.22	49.0	12.0
5.15	22.0	10.0
5.16	34.0	10.0
5.18	49.0	29.0
5.19	35.0	18.0
G.15	45.0	15.0
G.16	42.0	28.0
G.17	40.0	28.0
G.19	48.0	10.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
G.20	24.0	15.0
11.18	25.0	53.0
11.19	31.0	17.0
12.18	54.0	26.0
12.19	33.0	16.0
15.15	60.0	10.0
15.18	60.0	18.0
15.19	53.0	26.0
1.15, 2.16	37.0	21.0
1.16, 2.17	33.0	36.0
1.17, 2.18	34.0	37.0
4.16, G.18	48.0	13.0
6.17, 7.17	66.0	12.0
6.18, 7.18	50.0	29.0
6.19, 7.19	30.0	18.0
G.21, G.22	20.0	21.0
4.19, 15.16	49.0	11.0
5.17, 15.17	66.0	9.0
11.15, 12.15	25.0	9.0
11.17, 12.17	61.0	10.0
13.15, 14.15	26.0	9.0
13.17, 14.17	61.0	11.0
13.18, 14.18	54.0	25.0
13.19, 14.19	33.0	15.0
8.17, 9.17, 10.17	59.0	11.0
8.18, 9.18, 10.18	21.0	28.0
8.19, 9.19, 10.19	31.0	18.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
6.15, 7.15, 8.15, 9.15, 10.15	23.0	9.0
6.16, 7.16, 8.16, 9.16, 10.16	31.0	10.0
All other dwellings	34.0	9.0

**(b) Common areas and central systems/facilities**

<b>(i) Water</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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.		✓	✓

<b>Common area</b>	<b>Showerheads rating</b>	<b>Toilets rating</b>	<b>Taps rating</b>	<b>Clothes washers rating</b>
All common areas	3 star (> 6 but <= 7.5 L/min)	4 star	4 star	no common laundry facility

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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	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
Lift car (No.4)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.5)	-	-	light-emitting diode	connected to lift call button	No
Ground floor lobby - building B	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No
Hallway - building B	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 16
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 16

### 3. Commitments for Residential flat buildings - Building C

#### (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)	4 star	4 star	4 star	no	-	4 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
None	-	-	-	-	-	-	-	-

(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.		✓	✓

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (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 (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.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (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 (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, not ducted	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
1.26, 1.28, 1.29, 2.29, 2.31, 2.32, 3.29, 3.31, 3.32, 4.29, 4.31, 4.32, 5.28, 6.28, 7.28, 8.28, 9.28, G.30, G.32, 10.28, 11.28, 12.28, 13.28, 14.28, 15.28	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1	1	yes	yes	yes	yes	0	no

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
1.27, 2.30, 2.33, 3.30, 4.30, 4.33, 5.27, 5.30, 6.27, 6.30, 7.27, 7.30, 8.27, 8.30, 9.27, 9.30, G.31, 10.27, 10.30, 11.27, 11.30, 12.27, 12.30, 13.27, 13.30, 14.27, 14.30, 15.27, 15.30	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	3	1	yes	yes	yes	yes	0	no
All other dwellings	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	2	1	yes	yes	yes	yes	0	no

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	-	yes	3 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/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
2.26	28.0	14.0
2.28	36.0	13.0
2.29	37.0	16.0
2.33	32.0	17.0
3.26	34.0	9.0
3.27	35.0	11.0
3.28	30.0	9.0
3.29	43.0	11.0
3.30	28.0	19.0
3.31	52.0	14.0
3.32	50.0	15.0
4.28	32.0	8.0
4.29	35.0	20.0
4.30	35.0	18.0
4.32	53.0	14.0
4.33	58.0	15.0
5.26	30.0	10.0
5.27	27.0	18.0
5.28	63.0	14.0
6.29	22.0	9.0
7.29	54.0	25.0
G.29	22.0	21.0
G.30	36.0	11.0
G.31	28.0	23.0
11.29	55.0	24.0
15.28	66.0	9.0
15.29	66.0	22.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
15.30	53.0	26.0
1.26, 3.33	38.0	12.0
1.27, 2.30	23.0	29.0
1.28, 2.31	44.0	20.0
1.29, 2.32	42.0	20.0
4.26, 4.27	49.0	12.0
4.31, G.32	55.0	14.0
5.29, 5.30	32.0	14.0
6.27, 7.27	28.0	18.0
6.28, 7.28	64.0	14.0
11.27, 12.27	30.0	16.0
13.27, 14.27	31.0	16.0
15.26, 15.27	45.0	12.0
2.27, 6.30, 7.30	31.0	15.0
G.26, G.27, G.28	20.0	21.0
8.27, 9.27, 10.27	28.0	17.0
8.28, 9.28, 10.28	65.0	14.0
8.29, 9.29, 10.29	54.0	26.0
8.30, 9.30, 10.30	32.0	16.0
12.29, 13.29, 14.29	55.0	25.0
11.26, 12.26, 13.26, 14.26	25.0	9.0
11.28, 12.28, 13.28, 14.28	60.0	11.0
11.30, 12.30, 13.30, 14.30	33.0	15.0
All other dwellings	23.0	9.0

**(b) Common areas and central systems/facilities**

<b>(i) Water</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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.		✓	✓

<b>Common area</b>	<b>Showerheads rating</b>	<b>Toilets rating</b>	<b>Taps rating</b>	<b>Clothes washers rating</b>
All common areas	3 star (> 6 but ≤ 7.5 L/min)	4 star	4 star	no common laundry facility

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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	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
Lift car (No.6)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.7)	-	-	light-emitting diode	connected to lift call button	No
Ground floor lobby - building C	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No
Hallway - building C	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 16
Lift (No. 7)	gearless traction with V V V F motor	Number of levels (including basement): 16

## 4. Commitments for Residential flat buildings - Building D

### (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)	4 star	4 star	4 star	no	-	4 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
None	-	-	-	-	-	-	-	-

(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.		✓	✓

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (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 (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.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (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 (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, not ducted	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
5.37, 5.38, 6.37, 6.38, 7.37, 8.37, 8.38, 9.37, 9.38, 10.37, 10.38, 11.37, 12.37, 12.38, 13.37, 13.38, 13.47, 14.37, 14.38, 15.37	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1	1	yes	yes	yes	yes	0	no

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
2.37, 3.37, 4.37, 5.39, 5.41, 5.42, 6.39, 6.42, 7.39, 7.42, 8.39, 8.42, 9.39, 9.42, 10.39, 10.42, 11.38, 11.39, 11.42, 12.39, 12.42, 13.39, 13.42, 14.39, 14.42, 15.39, 15.42, 16.37, 16.38, 16.39, 16.40, 17.37, 17.38, 17.39, 17.40, 18.37, 18.38, 18.39, 18.40,	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	3	1	yes	yes	yes	yes	0	no

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
19.37, 19.38, 19.40												
All other dwellings	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	2	1	yes	yes	yes	yes	0	no

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	-	yes	3 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.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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 <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
1.38	47.0	20.0
2.37	31.0	23.0
2.38	63.0	20.0
2.40	42.0	26.0
3.37	36.0	14.0
3.38	63.0	15.0
3.39	33.0	15.0
3.40	50.0	20.0
4.37	25.0	25.0
4.38	66.0	15.0
4.39	35.0	14.0
5.37	65.0	15.0
5.38	64.0	13.0



	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
5.39	51.0	17.0
5.40	57.0	19.0
5.42	57.0	8.0
5.46	62.0	7.0
5.47	66.0	10.0
5.48	63.0	9.0
G.37	66.0	16.0
G.40	61.0	10.0
G.41	29.0	22.0
G.42	59.0	15.0
12.37	62.0	18.0
15.38	63.0	21.0
15.40	65.0	16.0
15.42	56.0	16.0
15.45	63.0	7.0
15.46	62.0	8.0
15.47	58.0	12.0
15.48	59.0	9.0
16.38	56.0	15.0
16.39	66.0	12.0
16.40	52.0	12.0
18.38	57.0	15.0
19.37	55.0	26.0
19.38	53.0	26.0
19.40	64.0	20.0
19.41	65.0	34.0
1.37, 2.39	27.0	23.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
5.43, 5.45	66.0	8.0
6.37, 7.37	65.0	23.0
6.38, 7.38	66.0	21.0
6.39, 7.39	49.0	17.0
6.41, 7.41	52.0	21.0
6.42, 7.42	52.0	19.0
6.43, 7.43	49.0	8.0
6.47, 7.47	49.0	11.0
6.48, 7.48	49.0	10.0
8.37, 9.37	66.0	23.0
8.38, 9.38	58.0	19.0
8.42, 9.42	53.0	19.0
8.43, 9.43	50.0	8.0
8.45, 9.45	50.0	10.0
8.47, 9.47	48.0	12.0
8.48, 9.48	46.0	10.0
4.40, 12.38	61.0	20.0
9.41, 10.41	53.0	20.0
10.37, 11.37	62.0	17.0
10.42, 11.42	55.0	17.0
10.47, 11.47	46.0	11.0
11.39, 12.39	47.0	15.0
11.41, 12.41	56.0	18.0
13.46, 14.46	56.0	8.0
17.37, 18.37	66.0	18.0
17.39, 18.39	57.0	12.0
17.40, 18.40	56.0	13.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
8.39, 9.39, 10.39	50.0	17.0
5.41, 13.38, 14.38	61.0	21.0
12.42, 13.42, 14.42	56.0	17.0
12.47, 13.47, 14.47	42.0	12.0
13.37, 14.37, 15.37	63.0	18.0
13.39, 14.39, 15.39	46.0	15.0
13.41, 14.41, 17.38	57.0	18.0
16.41, 17.41, 18.41	64.0	12.0
6.45, 7.45, G.38, G.39	49.0	9.0
6.40, 7.40, 10.38, 11.38	58.0	18.0
10.46, 11.46, 12.46, 15.43	55.0	8.0
11.40, 12.40, 13.40, 14.40	62.0	16.0
8.46, 9.46, 12.43, 13.43, 14.43	53.0	8.0
10.48, 11.48, 12.48, 13.48, 14.48	45.0	10.0
8.40, 8.41, 9.40, 10.40, 15.41, 16.37	59.0	18.0
All other dwellings	52.0	8.0

**(b) Common areas and central systems/facilities**

<b>(i) Water</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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.		✓	✓

<b>Common area</b>	<b>Showerheads rating</b>	<b>Toilets rating</b>	<b>Taps rating</b>	<b>Clothes washers rating</b>
All common areas	3 star (> 6 but ≤ 7.5 L/min)	4 star	4 star	no common laundry facility

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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
Lift car (No.8)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.9)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.10)	-	-	light-emitting diode	connected to lift call button	No
Ground floor lobby - building D	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No
Hallways - building D	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Lift (No. 8)	gearless traction with V V V F motor	Number of levels (including basement): 20
Lift (No. 9)	gearless traction with V V V F motor	Number of levels (including basement): 20
Lift (No. 10)	gearless traction with V V V F motor	Number of levels (including basement): 20

## 7. 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	3 star (> 6 but ≤ 7.5 L/min)	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	10000.0	To collect run-off from at least: - 1300.0 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 0.0 square metres of garden/lawn area in the development - 0.0 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 5316.0 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site

Central systems	Size	Configuration	Connection (to allow for...)
Pool (No. 1)	Volume: 180.0 kLs	Location: Communal Facilities Pool shaded: yes	-
Spa (No. 1)	Volume: 6.0 kLs	Location: Communal Facilities Spa shaded: no Spa cover: yes	-
Fire sprinkler system (No. 1)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-
Fire sprinkler system (No. 2)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

(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	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
Communal Facilities	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Changing rooms	ventilation exhaust only	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching with motion sensor	No
Garbage rooms & bin shoots	ventilation exhaust only	-	fluorescent	motion sensors	No
Plant or service room	ventilation supply only	interlocked to light	fluorescent	manual on / manual off	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes
Spa (No. 1)	Heating system: gas	Pump controlled by timer: yes
Sauna (No. 1)	Heating source: gas	Efficiency measure: manual on / timer off



## 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).