

## Thermal Comfort & BASIX Assessment

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Meriton  
Proposed Residential Development  
Dee Why Town Centre

To be built at:

Pittwater Road, Howard Avenue & Oaks Avenue,  
Dee Why, NSW 2099

Issue	File Ref	Description	Author	Date
A	8284	Thermal Comfort and BASIX Assessment	TMC/HE	15/01/16
B	16-0871	Update Thermal comfort and BASIX – Unit layout change	DO/HE	15/12/16
C	17-0259	Update Thermal comfort and BASIX – Unit layout change	HE	06/04/17

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 Tom Hutchinson. Phone: (02) 9287 2888 Email: tomh@meriton.com.au

**Introduction** Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at Pittwater Rd, Howard Ave & Oaks Ave, Dee Why NSW 2099.

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 Crone 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.

**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 6% below all allowable BASIX targets  
Average cooling loads are 47% below all allowable BASIX targets

**Glazing Doors/windows** Aluminium framed single tint glazing to all units:  
U-Value: 6.83 (equal to or lower than) SHGC: 0.54 ( $\pm 10\%$ )  
Aluminium framed low-e tint glazing to units **as per assessor certificate**:  
U-Value: 4.68 (equal to or lower than) SHGC: 0.39 ( $\pm 10\%$ )  
Given values are NFRC, total window values

**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 NatHERS technical notes 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

**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, tiles to wet areas and living areas

**BASIX water inclusions**

Score 40/40

## Fixtures within units

Showerheads: Mid flow (&gt;6L but &lt;=7.5 L/min)

Toilets: 4.0 star

Kitchen taps: 4.0 star

Bathroom vanity taps: 4.0 star

## Fixtures to common areas

Showerheads: Mid flow (&gt;6L but &lt;=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 1700m<sup>2</sup> roof area (non-trafficable roof, level 8 & 9)

Connected to outdoor tap for irrigation of all landscaping

## Pool &amp; Spa

Pool to have a capacity no greater than 117kL for building A

Pool to have a capacity no greater than 117kL for building B

## Fire Sprinkler System

Fire sprinkler system to be contained in a closed loop for reuse

**BASIX energy inclusions**

Score 21/20

## Hot water system

Central gas-fired boiler with R1.0 (~38mm) insulation to ring main and supply risers

## Lift motors

All lifts to have gearless traction with VVVF motor

## Appliances &amp; other efficiency measures within units

Gas cooktop &amp; electric oven

Dishwashers: 3.5 star

Clothes dryers: 2.0 star

Well ventilated fridge space

## Heating &amp; cooling within units

All units to have individual, single phase, reverse cycle air conditioning to living areas and at least 1 bedroom.

2.0 stars is required in cooling mode &amp; 2.5 stars heating mode – to all units

Day night zoning nominated

## Artificial lighting

At least 80% of all light fittings with-in each room are to have fluorescent or LED globes.



## within units

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

Indoor pool – Compact fluorescent or LEDs with manual on / manual off switch  
Gym – Compact fluorescent or LEDs with manual on / manual off switch  
Gym 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  
Switch room – Fluorescent lights with manual on / manual off switch  
Garbage room – Fluorescent lights with motion sensor  
Waste collection area – Fluorescent lights with motion sensor  
Managers room - Compact fluorescent or LEDs, manual on/off  
Plant or services rooms – Fluorescent lights with manual on / manual off switch  
Store 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

Indoor pool – air conditioned – time clock or BMS controlled  
Gym – air conditioned – time clock or BMS controlled  
Gym changing rooms - Exhaust air - time clock or BMS controlled  
Car park area – supply & exhaust air with a carbon monoxide monitor & VSD fan  
Switch room – Supply only, interlocked to light  
Garbage room – Exhaust air, running continuously  
Waste collection area – Exhaust air, running continuously  
Managers room - air conditioned – time clock or BMS controlled  
Plant or service rooms – Supply only, interlocked to light  
Store rooms – no mechanical ventilation



	Ground floor lobbies & hallways – ventilation supply – time clock or BMS controlled
Alternative energy	No BASIX requirement for alternative energy
Pool, Spa & Sauna	Pool heating systems: Electric heat pump Both pool pumps to be controlled by a timer Saunas: gas heating – manual on / timer off
Report Contact	Daniel O'Neill & Haylea Edwards Phone: (02) 9970 6181 Email: dan@efficientliving.com.au
Documentation	This report is based upon the following stamped plans prepared by Crone Architects A0010, A0011, A0012, A0013, A0014, A0015, A0016, A0017, A0018, A0019, A0020, A0021, A0022, A0023, A0024, A0025, A0026, A0027, A0028, A0029, A0030, A0031, A0040, A0041, A0042, A0043, A0050, A0051, A0052 & A0053





## Thermal Comfort Results

Proposed Residential Development

**Dee Why Town Centre**

**Dee Why NSW 2099**



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

Certificate # 14732574						Accreditation #		VIC/BDV/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									
213	1	52	0	37	28	5.0	0	Yes	None
215	2	83	0	32	17	6.0	0	No	None
216	2	86	0	26	14	6.5	0	No	None
217	2	89	0	27	30	5.5	0	No	None
218	2	77	0	66	15	4.0	0	No	None
219	3	109	0	45	44	3.5	0	No	Low-e glazing throughout
313	2	103	0	46	23	4.5	0	No	None
315	3	108	0	27	51	4.0	0	No	None
316	3	101	0	45	20	5.0	0	No	None
317	1	52	0	25	18	6.5	0	No	None
318	2	83	0	39	12	6.0	0	No	None
319	2	86	0	37	10	6.0	0	No	None
320	2	89	0	36	24	5.0	0	No	None
321	2	77	0	63	11	4.5	0	No	None
322	3	109	0	58	20	4.0	0	No	Low-e glazing throughout
413	2	103	0	45	23	4.5	0	No	None
415	3	108	0	35	30	5.0	0	No	None
416	3	101	0	50	24	4.5	0	No	None
417	1	52	0	24	22	6.0	0	No	None
418	1	52	0	62	28	4.5	0	No	None
419	2	74	0	56	16	4.5	0	No	None
420	1	49	0	21	13	7.0	0	No	None
421	2	91	0	57	27	4.0	0	No	None
522	3	117	0	47	13	5.0	0	Yes	None
422	2	87	0	63	18	4.0	0	No	None
513	2	103	0	46	22	4.5	0	No	None
515	3	108	0	35	30	5.0	0	No	None
516	3	101	0	50	23	4.5	0	No	None
517	1	52	0	35	31	5.0	0	No	None
518	1	52	0	46	27	4.5	0	No	None
519	2	74	0	56	16	4.5	0	No	None
520	1	49	0	22	13	7.0	0	No	None
521	2	91	0	41	30	4.5	0	Yes	None
523	2	87	0	63	17	4.0	0	No	None
613	2	103	0	46	22	4.5	0	No	None

Efficient Living

Sustainable Building Consultants

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## Thermal Comfort Results

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Certificate # 14732574				Accreditation #			VIC/BDV/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)				
615	3	109	0	36	29	5.0	0	No	None
616	3	101	0	51	22	4.5	0	No	None
617	1	52	0	36	30	4.5	0	No	None
618	1	52	0	46	26	4.5	0	No	None
619	2	74	0	57	16	4.5	0	No	None
620	1	49	0	22	14	7.0	0	No	None
621	2	85	0	43	28	4.5	0	No	None
622	2	107	0	64	14	4.0	0	Yes	None
623	2	87	0	64	17	4.0	0	No	None
713	2	103	0	46	22	4.5	0	No	None
715	3	109	0	36	29	5.0	0	No	None
716	3	101	0	52	21	4.5	0	No	None
717	1	52	0	36	30	4.5	0	No	None
718	1	52	0	47	25	4.5	0	No	None
719	2	74	0	65	18	4.0	0	No	None
720	3	112	0	62	19	4.0	0	Yes	None
721	2	87	0	60	16	4.0	0	No	Low-e glazing to Living area only
813	2	104	0	61	13	4.5	0	No	None
815	3	104	0	37	30	4.5	0	No	None
816	2	89	0	41	14	5.5	0	No	None
817	3	95	0	52	44	3.5	0	No	None
818	2	90	0	53	33	4.0	0	Yes	Low-e glazing throughout
913	3	115	0	46	59	3.0	0	No	Low-e glazing throughout
915	3	97	0	50	30	4.0	0	No	None
916	3	95	0	44	47	3.5	0	No	None
917	2	90	0	62	33	3.5	0	Yes	Low-e glazing throughout
918	3	98	0	41	18	5.0	0	No	Low-e glazing throughout
1015	3	115	0	38	59	3.5	0	No	Low-e glazing throughout
1016	3	97	0	41	28	4.5	0	No	None
1017	3	95	0	48	40	4.0	0	No	None
1018	2	90	0	62	33	3.5	0	Yes	Low-e glazing throughout
1013	3	98	0	41	18	5.0	0	No	Low-e glazing throughout
1115	3	115	0	59	38	3.5	0	No	Low-e glazing throughout
1116	3	97	0	42	30	4.5	0	No	None
1117	3	95	0	48	39	4.0	0	No	None
1118	2	90	0	62	31	3.5	1	Yes	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)				
1113	3	98	0	41	18	5.0	0	No	Low-e glazing throughout
1215	3	115	0	38	59	3.5	0	No	Low-e glazing throughout
1216	3	97	0	42	29	4.5	0	No	None
1217	3	95	0	49	39	4.0	0	No	None
1218	2	90	0	62	31	3.5	1	Yes	Low-e glazing throughout
1213	3	98	0	42	17	5.0	0	No	Low-e glazing throughout
1315	3	115	0	38	59	3.5	0	No	Low-e glazing throughout
1316	3	97	0	42	29	4.5	0	No	None
1317	3	95	0	51	35	4.0	0	No	None
1318	2	90	0	62	31	3.5	1	Yes	Low-e glazing throughout
1313	3	98	0	42	17	5.0	0	No	Low-e glazing throughout
1415	3	115	0	38	59	3.5	0	No	Low-e glazing throughout
1416	3	97	0	42	32	4.5	0	No	None
1417	3	95	0	50	36	4.0	0	No	None
1418	2	90	0	65	31	3.5	1	Yes	Low-e glazing throughout
1413	3	98	0	42	17	5.0	0	No	Low-e glazing throughout
1515	3	115	0	53	59	3.0	0	No	Low-e glazing throughout
1516	3	97	0	53	31	4.0	0	No	None
1517	3	130	0	50	45	3.5	0	Yes	Low-e glazing throughout, and R2.5 insulation to ceiling
1518	3	114	0	65	21	4.0	0	Yes	Low-e glazing throughout R2.5 insulation to ceiling
1513	3	98	0	66	21	4.0	0	No	Low-e glazing to Living area and Bedroom to balcony only
201	2	93	0	58	11	4.5	0	No	R1.2 floor insulation where exposed
202	1	62	0	38	18	5.5	0	No	R1.2 floor insulation where exposed
203	1	60	0	57	15	4.0	0	No	R1.2 floor insulation where exposed
205	1	62	0	45	22	4.5	0	No	R1.2 floor insulation where exposed
206	1	83	0	39	24	5.0	0	No	R1.2 floor insulation where exposed
207	3	103	0	51	17	4.5	0	No	R1.2 floor insulation where exposed
208	3	105	0	34	51	4.0	0	No	R1.2 floor insulation where exposed
209	3	101	0	45	31	5.0	0	No	None
210	1	62	0	56	17	4.5	0	No	None
211	1	52	0	49	11	5.0	0	No	None
301	2	93	0	56	12	4.5	0	No	None
302	1	62	0	41	12	5.5	0	No	None

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## Thermal Comfort Results

Proposed Residential Development

**Dee Why Town Centre**

**Dee Why NSW 2099**



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

Certificate # 14732574				Accreditation #			VIC/BDV/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)				
303	1	60	0	46	16	5.0	0	No	None
305	1	62	0	45	17	5.0	0	No	None
306	1	55	0	46	20	5.0	0	No	None
307	3	105	0	32	13	6.5	0	No	None
308	2	78	0	65	21	4.0	0	No	Low-e glazing to Living area and Master Bedroom only
401	2	93	0	56	12	4.5	0	No	None
402	1	62	0	38	18	5.5	0	No	None
403	1	60	0	47	16	5.0	0	No	None
405	1	62	0	45	16	5.0	0	No	None
406	1	55	0	46	20	4.5	0	No	None
407	3	105	0	34	12	6.0	0	No	None
408	2	78	0	66	27	3.5	0	No	None
501	2	93	0	56	12	4.5	0	No	None
502	1	62	0	42	12	5.5	0	No	None
503	1	60	0	47	16	5.0	0	No	None
505	1	62	0	46	16	5.0	0	No	None
506	1	55	0	48	20	4.5	0	No	None
507	3	102	0	39	22	5.0	0	No	None
508	2	78	0	66	27	3.5	0	No	None
601	2	93	0	65	19	4.0	0	No	None
602	1	62	0	24	27	5.5	0	No	None
603	1	61	0	27	21	6.0	0	No	None
605	2	87	0	27	21	6.0	0	No	None
606	2	98	0	26	50	4.0	0	No	None
607	2	78	0	66	24	3.5	0	No	None
701	2	96	0	63	27	3.5	0	No	None
702	1	51	0	54	16	4.5	0	No	None
703	1	51	0	51	13	5.0	0	No	None
705	2	77	0	46	18	5.0	0	No	None
706	2	90	0	46	36	4.0	0	No	None
707	2	78	0	65	27	3.5	0	No	None
801	2	96	0	57	28	4.0	0	No	Low-e glazing throughout, and R2.5 ceiling insulation where exposed
802	1	53	0	40	17	5.5	0	No	None
803	1	51	0	65	12	4.0	0	No	None

## Thermal Comfort Results

Proposed Residential Development

**Dee Why Town Centre**

**Dee Why NSW 2099**



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

Certificate # 14732574					Accreditation #		VIC/BDV/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)				
805	2	77	0	58	16	4.5	0	No	None
Building B									
242	2	89	0	39	39	4.0	0	No	None
243	2	73	0	65	23	4.0	0	No	Low-e glazing throughout, & R1.2 insulation where floor is exposed
245	2	87	0	65	21	4.0	0	No	None
246	1	52	0	49	22	4.5	0	No	None
247	1	66	0	49	27	4.0	0	No	None
227	1	61	0	31	27	5.5	0	No	R1.2 insulation to floor where exposed
228	2	82	0	66	19	4.0	0	No	None
229	2	86	0	66	19	4.0	0	No	None
230	1	51	0	46	19	5.0	0	No	None
231	1	51	0	44	20	5.0	0	No	None
232	1	51	0	44	20	5.0	0	No	None
233	2	82	0	34	16	6.0	0	No	None
235	3	114	0	32	18	6.0	0	No	None
236	3	113	0	35	15	6.0	0	No	None
237	3	109	0	52	15	4.5	0	No	None
238	3	122	0	60	30	3.5	0	No	None
239	3	116	0	38	25	5.0	0	No	None
240	2	87	0	51	16	4.5	0	No	None
241	3	145	0	33	20	5.5	0	No	None
338	2	89	0	46	27	4.5	0	No	None
339	2	73	0	60	17	4.0	0	No	None
340	2	87	0	45	15	5.0	0	No	None
341	2	78	0	57	14	4.5	0	No	None
342	2	78	0	46	12	5.0	0	No	None
327	1	61	0	38	18	5.5	0	No	None
328	2	82	0	65	24	3.5	0	No	None
329	2	86	0	30	20	6.0	0	No	None
330	1	51	0	47	13	5.0	0	No	None
331	1	51	0	49	12	5.0	0	No	None
332	1	51	0	48	13	5.0	0	No	None
333	2	82	0	28	16	6.5	0	No	None

## Thermal Comfort Results

Proposed Residential Development

**Dee Why Town Centre**

**Dee Why NSW 2099**



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

Certificate # 14732574				Accreditation #			VIC/BDV/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)				
335	3	114	0	56	13	4.5	0	No	None
336	3	128	0	61	33	3.5	0	No	None
337	2	75	0	66	12	4.0	0	No	None
436	3	97	0	51	18	4.5	0	No	Low-e glazing throughout
437	1	59	0	50	16	5.0	0	No	Low-e glazing throughout
438	1	53	0	58	18	4.0	0	No	None
439	1	53	0	54	20	4.5	0	No	None
440	1	67	0	52	32	4.0	0	No	Low-e glazing throughout
427	3	109	0	51	18	4.5	0	No	Low-e glazing throughout
428	3	103	0	49	19	4.5	0	No	None
429	1	55	0	35	14	6.0	0	No	None
430	3	111	0	46	32	4.0	0	Yes	None
431	1	59	0	58	17	4.0	0	No	Low-e glazing throughout
432	3	104	3	54	20	4.5	0	Yes	Low-e glazing throughout
433	3	113	0	48	26	4.5	0	No	None
435	3	118	0	51	6	5.5	0	No	Low-e glazing throughout
536	2	112	0	66	26	3.5	0	Yes	Low-e glazing throughout, R2.5 insulation, ceiling where exposed
537	3	97	0	39	25	5.0	0	No	Low-e glazing throughout
538	1	59	0	50	16	5.0	0	No	Low-e glazing throughout
539	1	53	0	58	18	4.0	0	No	None
540	1	53	0	54	19	4.5	0	No	None
541	1	67	0	52	31	4.0	0	No	Low-e glazing throughout
527	1	60	0	64	29	3.5	0	No	Low-e glazing to Living area only
528	2	90	0	57	24	4.0	0	No	None
529	2	81	0	62	28	3.5	0	No	None
530	2	79	0	43	11	5.5	0	No	None
531	2	83	0	43	37	4.0	0	Yes	None
532	1	59	0	50	14	5.0	0	No	Low- glazing throughout
533	3	104	3	54	22	4.5	0	Yes	Low-e glazing throughout
535	3	113	0	48	27	4.5	0	No	None
638	3	97	0	39	26	5.0	0	No	Low-e glazing throughout

## Thermal Comfort Results

Proposed Residential Development  
**Dee Why Town Centre**  
**Dee Why NSW 2099**



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

Certificate # 14732574				Accreditation #			VIC/BDV/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)				
639	1	59	0	49	16	5.0	0	No	Low-e glazing throughout
640	1	53	0	59	18	4.0	0	No	None
641	1	53	0	55	19	4.5	0	No	None
642	1	67	0	53	31	4.0	0	No	Low-e glazing throughout
627	1	60	0	64	28	3.5	0	No	Low-e glazing to Living area only
628	2	90	0	49	25	4.5	0	No	None
629	2	81	0	50	12	5.0	0	No	None
630	2	79	0	43	11	5.5	0	No	None
631	2	83	0	44	35	4.0	0	Yes	None
632	2	100	0	59	25	4.0	0	No	Low-e glazing to living area
633	3	104	3	54	22	4.5	0	Yes	Low-e glazing throughout
635	3	113	0	49	26	4.5	0	No	None
636	2	92	0	52	12	5.0	0	No	Low-e glazing throughout
734	2	112	0	66	47	3.0	0	No	Low-e glazing throughout, and R2.5 ceiling insulation where exposed
735	2	81	0	57	24	4.0	0	No	Low-e glazing throughout
736	1	59	0	59	17	4.0	0	No	Low-e glazing throughout
737	1	53	0	63	14	4.0	0	No	None
738	1	53	0	56	19	4.5	0	No	None
739	1	67	0	66	30	3.5	0	No	Low-e glazing throughout
727	1	60	0	64	28	3.5	0	No	Low-e glazing to Living area only
728	2	90	0	51	24	4.5	0	No	None
729	2	81	0	57	11	4.5	0	No	None
730	2	79	0	55	10	5.0	0	No	None
731	2	83	0	54	32	4.0	0	Yes	None
732	3	104	3	48	27	4.5	0	Yes	Low-e glazing throughout
733	3	113	0	48	26	4.5	0	No	None
827	2	90	0	58	19	4.0	0	Yes	Low-e glazing throughout
828	2	82	0	30	31	5.0	0	No	Low-e glazing throughout
829	2	77	0	32	16	6.0	0	No	Low-e glazing throughout
830	2	83	0	61	43	3.5	0	No	R1.2 insulation to exposed floor, and low-e glazing throughout
831	2	75	0	61	16	4.0	0	No	Low-e glazing throughout

## Thermal Comfort Results

Proposed Residential Development  
**Dee Why Town Centre**  
**Dee Why NSW 2099**



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

Certificate # 14732574				Accreditation #			VIC/BDV/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)				
927	2	87	0	58	55	3.0	0	No	Low-e glazing throughout
928	2	82	0	29	31	5.0	0	No	Low-e glazing throughout
929	2	77	0	32	16	6.0	0	No	Low-e glazing throughout
930	2	83	0	59	40	3.5	0	No	Low-e glazing throughout
931	2	75	0	63	14	4.0	0	No	Low-e glazing throughout
1027	2	87	0	58	55	3.0	1	Yes	Low-e glazing throughout
1028	2	82	0	31	26	5.5	0	No	Low-e glazing throughout
1029	2	77	0	32	16	6.0	0	No	Low-e glazing throughout
1030	2	83	0	60	40	3.5	0	No	Low-e glazing throughout
1031	2	75	0	63	15	4.0	0	No	Low-e glazing throughout
1127	2	87	0	58	55	3.0	1	Yes	Low-e glazing throughout
1128	2	82	0	31	26	5.5	0	Yes	Low-e glazing throughout
1129	2	77	0	32	15	6.0	0	No	Low-e glazing throughout
1130	2	83	0	60	39	3.5	0	No	Low-e glazing throughout
1131	2	75	0	63	15	4.0	0	No	Low-e glazing throughout
1227	2	87	0	59	53	3.0	1	Yes	Low-e glazing throughout
1228	2	82	0	31	26	5.5	0	No	Low-e glazing throughout
1229	2	77	0	32	15	6.0	0	No	Low-e glazing throughout
1230	2	83	0	60	40	3.5	0	No	Low-e glazing throughout
1231	2	75	0	63	14	4.0	0	No	Low-e glazing throughout
1327	2	87	0	59	54	3.0	1	No	Low-e glazing throughout
1328	2	82	0	31	26	5.5	0	No	Low-e glazing throughout
1329	2	77	0	32	15	6.0	0	No	Low-e glazing throughout
1330	2	83	0	60	40	3.5	0	No	Low-e glazing throughout
1331	2	75	0	63	14	4.0	0	No	Low-e glazing throughout
1427	2	87	0	59	54	3.0	1	Yes	Low-e glazing throughout
1428	2	82	0	31	26	5.5	0	No	Low-e glazing throughout
1429	2	77	0	44	14	5.0	0	No	Low-e glazing throughout
1430	2	83	0	66	37	3.5	0	No	Low-e glazing throughout, and R2.5 ceiling insulation where exposed
1431	2	75	0	62	13	4.0	0	No	Low-e glazing throughout, and R2.5 ceiling insulation where exposed
1527	2	90	0	59	43	3.5	0	Yes	Low-e glazing throughout



## Thermal Comfort Results

Proposed Residential Development

**Dee Why Town Centre**

**Dee Why NSW 2099**



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

Certificate # 14732574				Accreditation #			VIC/BDV/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)				
1528	3	87	0	44	27	4.5	0	No	Low-e glazing throughout
1627	2	111	0	47	39	4.0	0	Yes	Low-e glazing throughout
1628	3	109	0	37	38	4.5	0	No	Low-e glazing throughout
1629	3	114	0	61	27	3.5	0	Yes	Low-e glazing throughout
Building C									
265	2	85	0	43	36	4.0	0	No	None
263	2	79	0	35	20	5.5	0	No	None
262	3	101	0	31	26	5.5	0	No	None
261	3	116	0	54	13	4.5	0	No	None
260	3	116	0	43	13	5.5	0	No	None
259	3	116	0	43	13	5.5	0	No	None
258	3	116	0	43	13	5.5	0	No	None
257	3	116	0	43	13	5.5	0	No	None
256	3	116	0	43	13	5.5	0	No	None
255	3	116	0	51	13	5.0	0	No	None
253	3	110	0	59	17	4.0	0	No	None
358	2	93	0	53	21	4.5	0	No	None
357	2	93	0	54	22	4.0	0	No	None
356	2	93	0	50	59	3.0	0	No	None
355	2	93	0	50	59	3.0	0	No	None
353	2	105	0	55	54	3.0	0	No	None
252	2	80	0	37	32	4.5	0	No	None
251	2	88	0	30	25	5.5	0	No	None
250	2	96	0	30	22	5.5	0	No	None
269	1	53	0	35	17	5.5	0	No	None
268	2	95	0	39	16	5.5	0	No	None
267	2	82	0	41	17	5.0	0	No	None
266	1	53	0	34	18	6.0	0	No	None
362	2	85	0	65	25	3.5	0	No	None
361	2	79	0	42	13	5.5	0	No	None
360	3	101	0	37	17	5.5	0	No	None
359	3	110	0	62	13	4.5	0	No	None
352	2	80	0	48	19	4.5	0	No	None
351	2	88	0	53	17	4.5	0	No	None
350	2	96	0	45	13	5.5	0	No	None

## Thermal Comfort Results

Proposed Residential Development  
**Dee Why Town Centre**  
**Dee Why NSW 2099**



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

Certificate # 14732574				Accreditation #			VIC/BDV/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)				
367	1	53	0	28	12	6.5	0	No	None
366	2	95	0	47	11	5.5	0	No	None
365	2	82	0	45	13	5.5	0	No	None
363	1	53	0	27	12	6.5	0	No	None
459	2	74	0	52	19	4.5	0	No	None
458	1	59	0	28	13	6.5	0	No	None
457	2	93	0	55	54	3.0	0	Yes	Low-e glazing throughout, & R2.5 insulation where balcony is above
456	2	82	0	50	13	5.0	0	No	None
455	2	82	0	48	14	5.0	0	No	None
453	2	75	0	66	20	4.0	0	No	None
452	3	103	0	65	17	4.0	0	Yes	Low-e glazing throughout, & R2.5 insulation where balcony is above
451	2	90	0	48	29	4.0	0	No	None
450	2	87	0	39	18	5.5	0	No	None
463	1	52	0	53	14	4.5	0	No	None
462	2	83	0	50	12	5.0	0	No	None
461	2	81	0	48	13	5.0	0	No	None
460	1	52	0	55	14	4.5	0	No	None
557	2	84	12	45	26	4.5	0	Yes	None
556	2	97	0	66	21	4.0	1	Yes	Low-e glazing throughout, & R2.5 insulation where balcony is above
555	3	101	0	66	17	4.0	0	Yes	Low-e glazing throughout, & R2.5 insulation where balcony is above
553	2	84	0	65	19	4.0	0	Yes	Low-e glazing throughout, & R2.5 insulation where balcony is above
552	2	85	0	56	16	4.5	0	Yes	Low-e glazing to living room sliding door, & R2.5 insulation where balcony is above
551	1	53	0	28	12	6.5	0	No	None
563	2	112	0	29	21	6.0	0	Yes	None
562	3	113	0	22	14	7.0	0	Yes	None
561	2	112	0	29	21	6.0	0	Yes	None
560	3	113	0	22	14	7.0	0	Yes	None
559	3	112	0	22	14	7.0	0	Yes	None
558	2	79	5	61	13	4.5	1	Yes	None

# Thermal Comfort Results

Proposed Residential Development

**Dee Why Town Centre**

**Dee Why NSW 2099**

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

Certificate # 14732574					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)				
550	3	103	0	51	37	3.5	1	Yes	None
Building D									
272	3	98	0	33	21	5.5	0	No	None
273	3	113	0	48	37	4.0	0	No	None
275	3	117	0	42	12	5.5	0	No	None
276	3	117	0	52	11	5.0	0	No	None
277	3	117	0	49	10	5.0	0	No	None
278	3	113	0	58	14	4.5	0	No	R1.2 insulation to exposed floor
279	2	89	0	55	15	4.5	0	No	None
375	3	111	0	45	15	5.0	0	No	None
376	2	89	0	48	10	5.5	0	No	None
372	3	98	0	42	16	5.5	0	No	None
373	3	114	0	54	23	4.0	0	No	None
472	3	96	0	37	21	5.5	0	No	None
473	1	55	0	18	24	6.5	0	No	None
475	2	92	0	64	20	4.0	0	Yes	None
476	2	82	0	47	13	5.0	0	No	None
477	2	92	0	52	15	4.5	0	No	None
478	2	77	0	39	11	6.0	0	No	None
527	2	80	0	50	34	4.0	0	Yes	None
573	2	103	0	57	25	4.0	1	No	None
575	2	83	0	66	20	4.0	1	No	None
576	2	79	0	54	9	5.0	0	Yes	None
577	2	92	0	54	53	3.0	1	Yes	None
673	2	80	0	39	17	5.5	1	Yes	None
672	1	60	0	32	22	5.5	1	No	None



# NatHERS Certificate

## New Dwelling



**4.5 Stars**

### Simulation Software

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

### Simulation Details

Project Name S-40 - unit 535\_1  
Date 14/01/2016  
Location DEE WHY PC 2099  
Climate file climat56.TXT  
Adjusted Star Rating 4.5 Stars  
Conditioned Area 112.55 m<sup>2</sup>  
Unconditioned Area 0.00 m<sup>2</sup>  
Adjusted Cooling 26.5 MJ/m<sup>2</sup>  
Adjusted Heating 48.2 MJ/m<sup>2</sup>  
Adjusted Total 74.7 MJ/m<sup>2</sup>

### Dwelling Address


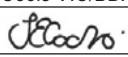
DP Number  
Unit Number  
Lot Number  
House Number  
Street Name Pittwater Rd, Howard Ave & Oaks Ave  
Development Name Dee Why Town Centre  
Suburb Dee Why NSW 2099

### Client Details

Name Meriton Group  
Phone 02 9287 2590 Fax 02 9287 2790  
Email  
Postal Address Level 11, Meriton Tower, 528 Kent Street, Sydney NSW 2000  
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 13/13 Lagoon Street, Narrabeen NSW 2101  
Street Details 13/13 Lagoon Street, Narrabeen NSW 2101

	<b>Energy Rating</b>	Certificate Number <b>14732574</b>
<input type="checkbox"/> single-dwelling rating		<b>4.5</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>48</b> MJ/m <sup>2</sup> cooling <b>24</b> MJ/m <sup>2</sup>	
Recessed downlights confirmation: <input checked="" type="checkbox"/> Rated with <input type="checkbox"/> Rated without		
Assessor Name/Number <b>Tracey Cools VIC/BDAV/12/1473</b>		
Assessor Signature  Date <b>06/04/17</b>		

Signed by the Assessor..........Date... 06 / 04 / 2017 .....

*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 S-40 - unit 535 Run 1  
DEE WHY PC 2099 Lat -33.70 Long 151.30 Climate File climat56.TXT

Summary  
Conditioned Area 112.6 m²  
Unconditioned Area 0.0 m²  
Total Floor Area 112.6 m²  
Total Glazed Area 42.3 m²  
Total External Solid door Area 1.7 m²  
Glass to Floor Area 37.6 %  
Gross External Wall Area 129.5 m²  
Net External Wall Area 85.5 m²

Window  
42.3 m² BGC-05-013a Affinity Windows Uval 6.83 SHGC 0.54  
Glass 5mm Grey  
Frame Aluminium 4-Lite Sliding Window - Single Glazed


External Wall  
38.6 m² Tilt up concrete, lined Bulk Insulation R 1.5  
43.5 m² PowerPanel to neighbour No Insulation  
3.4 m² PowerPanel Bulk Insulation R 1.7

Internal Wall  
86.0 m² Cavity Panel 70mm gap No Insulation

External Floor  
47.2 m² Concrete Slab, Unit Below Carpet 10mm No Insulation  
53.4 m² Concrete Slab, Unit Below 80/20 Carpet 10mm/Ceramic No Insulation  
7.4 m² Concrete Slab, Unit Below Ceramic Tiles 8mm No Insulation  
4.6 m² Suspended Concrete Slab Ceramic Tiles 8mm No Insulation

External Ceiling  
112.6 m² Plasterboard No Insulation Apartment above

Roof (Horizontal area)  
112.6 m² Concrete No Insulation, Only an Air Gap 0° slope Skillion roof

**Energy Rating**

Certificate Number **14732574**

☐ single-dwelling rating


☒ multi-unit development (attach listing of ratings)  
If selected, data specified is the average across the entire development

heating **48** MJ/m²

cooling **24** MJ/m²

Recessed downlights confirmation: ☒ Rated with ☐ Rated without

Assessor Name/Number **Tracey Cools VIC/BDAV/12/1473**

Assessor Signature  Date **06/04/17**

# BASIX<sup>®</sup>Certificate

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

## Multi Dwelling

Certificate number: 602249M\_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 602249M lodged with the consent authority or certifier on 12 February 2016 with application DA2015/0612.

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: Thursday, 06 April 2017

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



### Project summary

Project name	Dee Why Town Centre_03
Street address	Pittwater Road Dee Why 2099
Local Government Area	Warringah Council
Plan type and plan number	deposited 212382
Lot no.	1
Section no.	-
No. of residential flat buildings	2
No. of units in residential flat buildings	351
No. of multi-dwelling houses	0
No. of single dwelling houses	0

### Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 21	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	Dee Why Town Centre_03
Street address	Pittwater Road Dee Why 2099
Local Government Area	Warringah Council
Plan type and plan number	deposited 212382
Lot no.	1
Section no.	-

## Project type

No. of residential flat buildings	2
No. of units in residential flat buildings	351
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m <sup>2</sup> )	14466
Roof area (m <sup>2</sup> )	4484
Non-residential floor area (m <sup>2</sup> )	14925.0
Residential car spaces	490
Non-residential car spaces	541

## Common area landscape

Common area lawn (m <sup>2</sup> )	2783.0
Common area garden (m <sup>2</sup> )	1000.0
Area of indigenous or low water use species (m <sup>2</sup> )	0.0

## Assessor details

Assessor number	BDAV/12/1473
Certificate number	14732574
Climate zone	56

## Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 21	Target 20

## Description of project

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

### Residential flat buildings - Building A & D , 163 dwellings, 18 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> )
201	2	93.0	0.0	0.0	0.0
206	1	83.0	0.0	0.0	0.0
210	1	62.0	0.0	0.0	0.0
216	2	86.0	0.0	0.0	0.0
272	3	98.0	0.0	0.0	0.0
277	3	117.0	0.0	0.0	0.0
302	1	62.0	0.0	0.0	0.0
307	3	105.0	0.0	0.0	0.0
316	3	101.0	0.0	0.0	0.0
320	2	89.0	0.0	0.0	0.0
373	3	114.0	0.0	0.0	0.0
402	1	62.0	0.0	0.0	0.0
407	3	105.0	0.0	0.0	0.0
416	3	101.0	0.0	0.0	0.0
420	1	49.0	0.0	0.0	0.0
473	1	55.0	0.0	0.0	0.0
478	2	77.0	0.0	0.0	0.0
505	1	62.0	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> )
202	1	62.0	0.0	0.0	0.0
207	3	103.0	0.0	0.0	0.0
211	1	52.0	0.0	0.0	0.0
217	2	89.0	0.0	0.0	0.0
273	3	113.0	0.0	0.0	0.0
278	3	113.0	0.0	0.0	0.0
303	1	60.0	0.0	0.0	0.0
308	2	78.0	0.0	0.0	0.0
317	1	52.0	0.0	0.0	0.0
321	2	77.0	0.0	0.0	0.0
375	3	111.0	0.0	0.0	0.0
403	1	60.0	0.0	0.0	0.0
408	2	78.0	0.0	0.0	0.0
417	1	52.0	0.0	0.0	0.0
421	2	91.0	0.0	0.0	0.0
475	2	92.0	0.0	0.0	0.0
501	2	93.0	0.0	0.0	0.0
506	1	55.0	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> )
203	1	60.0	0.0	0.0	0.0
208	3	115.0	0.0	0.0	0.0
213	1	52.0	0.0	0.0	0.0
218	2	77.0	0.0	0.0	0.0
275	3	117.0	0.0	0.0	0.0
279	2	89.0	0.0	0.0	0.0
305	1	62.0	0.0	0.0	0.0
313	2	103.0	0.0	0.0	0.0
318	2	83.0	0.0	0.0	0.0
322	3	109.0	0.0	0.0	0.0
376	2	89.0	0.0	0.0	0.0
405	1	62.0	0.0	0.0	0.0
413	2	103.0	0.0	0.0	0.0
418	1	52.0	0.0	0.0	0.0
422	2	87.0	0.0	0.0	0.0
476	2	82.0	0.0	0.0	0.0
502	1	62.0	0.0	0.0	0.0
507	3	102.0	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> )
205	1	62.0	0.0	0.0	0.0
209	3	101.0	0.0	0.0	0.0
215	2	83.0	0.0	0.0	0.0
219	3	109.0	0.0	0.0	0.0
276	3	117.0	0.0	0.0	0.0
301	2	93.0	0.0	0.0	0.0
306	1	55.0	0.0	0.0	0.0
315	3	108.0	0.0	0.0	0.0
319	2	86.0	0.0	0.0	0.0
372	3	98.0	0.0	0.0	0.0
401	2	93.0	0.0	0.0	0.0
406	1	55.0	0.0	0.0	0.0
415	3	108.0	0.0	0.0	0.0
419	2	74.0	0.0	0.0	0.0
472	2	96.0	0.0	0.0	0.0
477	2	92.0	0.0	0.0	0.0
503	1	60.0	0.0	0.0	0.0
508	2	78.0	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> )
513	2	103.0	0.0	0.0	0.0
518	1	52.0	0.0	0.0	0.0
522	3	117.0	0.0	0.0	0.0
575	2	103.0	0.0	0.0	0.0
602	1	62.0	0.0	0.0	0.0
607	2	78.0	0.0	0.0	0.0
617	1	52.0	0.0	0.0	0.0
621	2	85.0	0.0	0.0	0.0
673	2	80.0	0.0	0.0	0.0
705	2	77.0	0.0	0.0	0.0
715	3	109.0	0.0	0.0	0.0
719	2	74.0	0.0	0.0	0.0
802	1	53.0	0.0	0.0	0.0
815	3	104.0	0.0	0.0	0.0
913	3	115.0	0.0	0.0	0.0
918	3	98.0	0.0	0.0	0.0
1017	3	95.0	0.0	0.0	0.0
1116	3	97.0	0.0	0.0	0.0
1215	3	115.0	0.0	0.0	0.0
1313	3	98.0	0.0	0.0	0.0
1318	2	90.0	0.0	0.0	0.0
1417	3	95.0	0.0	0.0	0.0
1516	3	97.0	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> )
515	3	108.0	0.0	0.0	0.0
519	1	74.0	0.0	0.0	0.0
523	2	87.0	0.0	0.0	0.0
576	2	79.0	0.0	0.0	0.0
603	1	61.0	0.0	0.0	0.0
613	2	103.0	0.0	0.0	0.0
618	1	52.0	0.0	0.0	0.0
622	3	107.0	0.0	0.0	0.0
701	2	96.0	0.0	0.0	0.0
706	2	90.0	0.0	0.0	0.0
716	3	101.0	0.0	0.0	0.0
720	3	112.0	0.0	0.0	0.0
803	1	51.0	0.0	0.0	0.0
816	2	89.0	0.0	0.0	0.0
915	3	97.0	0.0	0.0	0.0
1013	3	98.0	0.0	0.0	0.0
1018	2	90.0	0.0	0.0	0.0
1117	3	95.0	0.0	0.0	0.0
1216	3	97.0	0.0	0.0	0.0
1315	3	115.0	0.0	0.0	0.0
1413	3	98.0	0.0	0.0	0.0
1418	2	90.0	0.0	0.0	0.0
1517	3	130.0	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> )
516	3	101.0	0.0	0.0	0.0
520	1	49.0	0.0	0.0	0.0
527	2	80.0	0.0	0.0	0.0
577	2	92.0	0.0	0.0	0.0
605	2	87.0	0.0	0.0	0.0
615	3	109.0	0.0	0.0	0.0
619	2	74.0	0.0	0.0	0.0
623	2	87.0	0.0	0.0	0.0
702	1	51.0	0.0	0.0	0.0
707	2	78.0	0.0	0.0	0.0
717	1	52.0	0.0	0.0	0.0
721	2	87.0	0.0	0.0	0.0
805	2	77.0	0.0	0.0	0.0
817	3	95.0	0.0	0.0	0.0
916	3	95.0	0.0	0.0	0.0
1015	3	115.0	0.0	0.0	0.0
1113	3	98.0	0.0	0.0	0.0
1118	2	90.0	0.0	0.0	0.0
1217	3	95.0	0.0	0.0	0.0
1316	3	97.0	0.0	0.0	0.0
1415	3	115.0	0.0	0.0	0.0
1513	3	98.0	0.0	0.0	0.0
1518	3	114.0	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> )
517	1	52.0	0.0	0.0	0.0
521	2	91.0	0.0	0.0	0.0
573	2	99.0	0.0	0.0	0.0
601	2	93.0	0.0	0.0	0.0
606	2	98.0	0.0	0.0	0.0
616	3	101.0	0.0	0.0	0.0
620	2	49.0	0.0	0.0	0.0
672	1	60.0	0.0	0.0	0.0
703	1	51.0	0.0	0.0	0.0
713	2	103.0	0.0	0.0	0.0
718	1	52.0	0.0	0.0	0.0
801	2	96.0	0.0	0.0	0.0
813	2	104.0	0.0	0.0	0.0
818	2	90.0	0.0	0.0	0.0
917	2	90.0	0.0	0.0	0.0
1016	3	97.0	0.0	0.0	0.0
1115	3	115.0	0.0	0.0	0.0
1213	3	98.0	0.0	0.0	0.0
1218	2	90.0	0.0	0.0	0.0
1317	3	95.0	0.0	0.0	0.0
1416	3	97.0	0.0	0.0	0.0
1515	3	115.0	0.0	0.0	0.0

## Residential flat buildings - Building B & C, 188 dwellings, 19 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> )
227	1	61.0	0.0	0.0	0.0
231	1	51.0	0.0	0.0	0.0
236	3	113.0	0.0	0.0	0.0
240	3	87.0	0.0	0.0	0.0
245	2	87.0	0.0	0.0	0.0
251	2	88.0	0.0	0.0	0.0
256	3	116.0	0.0	0.0	0.0
260	3	116.0	0.0	0.0	0.0
265	2	85.0	0.0	0.0	0.0
269	1	53.0	0.0	0.0	0.0
330	1	51.0	0.0	0.0	0.0
335	3	114.0	0.0	0.0	0.0
339	2	73.0	0.0	0.0	0.0
350	2	96.0	0.0	0.0	0.0
355	2	93.0	0.0	0.0	0.0
359	3	110.0	0.0	0.0	0.0
363	1	53.0	0.0	0.0	0.0
427	2	109.0	0.0	0.0	0.0
431	1	59.0	0.0	0.0	0.0
436	3	97.0	0.0	0.0	0.0
440	1	57.0	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> )
228	2	82.0	0.0	0.0	0.0
232	1	51.0	0.0	0.0	0.0
237	3	109.0	0.0	0.0	0.0
241	3	145.0	0.0	0.0	0.0
246	2	52.0	0.0	0.0	0.0
252	2	80.0	0.0	0.0	0.0
257	3	116.0	0.0	0.0	0.0
261	3	116.0	0.0	0.0	0.0
266	1	53.0	0.0	0.0	0.0
327	1	61.0	0.0	0.0	0.0
331	1	51.0	0.0	0.0	0.0
336	3	128.0	0.0	0.0	0.0
340	2	87.0	0.0	0.0	0.0
351	2	88.0	0.0	0.0	0.0
356	2	93.0	0.0	0.0	0.0
360	2	101.0	0.0	0.0	0.0
365	2	82.0	0.0	0.0	0.0
428	2	103.0	0.0	0.0	0.0
432	2	104.0	0.0	0.0	0.0
437	1	59.0	0.0	0.0	0.0
450	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> )
229	2	86.0	0.0	0.0	0.0
233	2	82.0	0.0	0.0	0.0
238	3	122.0	0.0	0.0	0.0
242	2	89.0	0.0	0.0	0.0
247	1	66.0	0.0	0.0	0.0
253	3	110.0	0.0	0.0	0.0
258	3	116.0	0.0	0.0	0.0
262	2	101.0	0.0	0.0	0.0
267	2	82.0	0.0	0.0	0.0
328	2	82.0	0.0	0.0	0.0
332	1	51.0	0.0	0.0	0.0
337	2	75.0	0.0	0.0	0.0
341	2	78.0	0.0	0.0	0.0
352	2	80.0	0.0	0.0	0.0
357	2	93.0	0.0	0.0	0.0
361	2	79.0	0.0	0.0	0.0
366	2	95.0	0.0	0.0	0.0
429	2	55.0	0.0	0.0	0.0
433	3	113.0	0.0	0.0	0.0
438	1	53.0	0.0	0.0	0.0
451	2	90.0	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> )
230	1	51.0	0.0	0.0	0.0
235	3	114.0	0.0	0.0	0.0
239	3	116.0	0.0	0.0	0.0
243	2	73.0	0.0	0.0	0.0
250	2	96.0	0.0	0.0	0.0
255	3	116.0	0.0	0.0	0.0
259	3	116.0	0.0	0.0	0.0
263	2	79.0	0.0	0.0	0.0
268	2	95.0	0.0	0.0	0.0
329	2	86.0	0.0	0.0	0.0
333	2	82.0	0.0	0.0	0.0
338	2	89.0	0.0	0.0	0.0
342	1	78.0	0.0	0.0	0.0
353	2	105.0	0.0	0.0	0.0
358	2	93.0	0.0	0.0	0.0
362	2	85.0	0.0	0.0	0.0
367	1	53.0	0.0	0.0	0.0
430	2	111.0	0.0	0.0	0.0
435	3	118.0	0.0	0.0	0.0
439	1	53.0	0.0	0.0	0.0
452	3	103.0	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> )
453	2	75.0	0.0	0.0	0.0
458	1	59.0	0.0	0.0	0.0
462	2	83.0	0.0	0.0	0.0
529	2	81.0	0.0	0.0	0.0
533	2	104.0	0.0	0.0	0.0
538	1	59.0	0.0	0.0	0.0
550	2	103.0	0.0	0.0	0.0
555	3	101.0	0.0	0.0	0.0
559	2	112.0	0.0	0.0	0.0
563	2	112.0	0.0	0.0	0.0
630	2	79.0	0.0	0.0	0.0
635	3	113.0	0.0	0.0	0.0
640	1	53.0	0.0	0.0	0.0
728	2	90.0	0.0	0.0	0.0
732	2	104.0	0.0	0.0	0.0
736	1	59.0	0.0	0.0	0.0
827	2	90.0	0.0	0.0	0.0
831	2	75.0	0.0	0.0	0.0
930	2	83.0	0.0	0.0	0.0
1029	2	77.0	0.0	0.0	0.0
1128	2	82.0	0.0	0.0	0.0
1227	2	87.0	0.0	0.0	0.0
1231	2	75.0	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> )
455	2	82.0	0.0	0.0	0.0
459	2	74.0	0.0	0.0	0.0
463	1	52.0	0.0	0.0	0.0
530	2	79.0	0.0	0.0	0.0
535	3	113.0	0.0	0.0	0.0
539	1	53.0	0.0	0.0	0.0
551	2	53.0	0.0	0.0	0.0
556	2	97.0	0.0	0.0	0.0
560	2	113.0	0.0	0.0	0.0
627	1	60.0	0.0	0.0	0.0
631	2	83.0	0.0	0.0	0.0
636	3	92.0	0.0	0.0	0.0
641	1	53.0	0.0	0.0	0.0
729	2	81.0	0.0	0.0	0.0
733	3	113.0	0.0	0.0	0.0
737	1	53.0	0.0	0.0	0.0
828	2	82.0	0.0	0.0	0.0
927	2	87.0	0.0	0.0	0.0
931	2	75.0	0.0	0.0	0.0
1030	2	83.0	0.0	0.0	0.0
1129	2	77.0	0.0	0.0	0.0
1228	2	82.0	0.0	0.0	0.0
1327	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> )
456	2	82.0	0.0	0.0	0.0
460	1	52.0	0.0	0.0	0.0
527	1	60.0	0.0	0.0	0.0
531	2	83.0	0.0	0.0	0.0
536	2	112.0	0.0	0.0	0.0
540	1	53.0	0.0	0.0	0.0
552	2	85.0	0.0	0.0	0.0
557	2	84.0	12.0	0.0	0.0
561	2	112.0	0.0	0.0	0.0
628	2	90.0	0.0	0.0	0.0
632	2	100.0	0.0	0.0	0.0
638	3	97.0	0.0	0.0	0.0
642	1	67.0	0.0	0.0	0.0
730	2	79.0	0.0	0.0	0.0
734	2	112.0	0.0	0.0	0.0
738	1	53.0	0.0	0.0	0.0
829	2	77.0	0.0	0.0	0.0
928	2	82.0	0.0	0.0	0.0
1027	2	87.0	0.0	0.0	0.0
1031	2	75.0	0.0	0.0	0.0
1130	2	83.0	0.0	0.0	0.0
1229	2	77.0	0.0	0.0	0.0
1328	2	82.0	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> )
457	2	93.0	0.0	0.0	0.0
461	2	81.0	0.0	0.0	0.0
528	2	90.0	0.0	0.0	0.0
532	1	59.0	0.0	0.0	0.0
537	3	97.0	0.0	0.0	0.0
541	1	67.0	0.0	0.0	0.0
553	2	84.0	0.0	0.0	0.0
558	2	79.0	0.0	0.0	0.0
562	3	113.0	0.0	0.0	0.0
629	2	81.0	0.0	0.0	0.0
633	2	104.0	0.0	0.0	0.0
639	1	59.0	0.0	0.0	0.0
727	1	60.0	0.0	0.0	0.0
731	2	83.0	0.0	0.0	0.0
735	2	81.0	0.0	0.0	0.0
739	1	67.0	0.0	0.0	0.0
830	2	83.0	0.0	0.0	0.0
929	2	77.0	0.0	0.0	0.0
1028	2	82.0	0.0	0.0	0.0
1127	2	87.0	0.0	0.0	0.0
1131	2	75.0	0.0	0.0	0.0
1230	2	83.0	0.0	0.0	0.0
1329	2	77.0	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> )
1330	1	83.0	0.0	0.0	0.0
1429	2	77.0	0.0	0.0	0.0
1528	3	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> )
1331	2	75.0	0.0	0.0	0.0
1430	2	83.0	0.0	0.0	0.0
1627	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> )
1427	2	87.0	0.0	0.0	0.0
1431	2	75.0	0.0	0.0	0.0
1628	2	60.0	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> )
1428	2	82.0	0.0	0.0	0.0
1527	2	90.0	0.0	0.0	0.0
1629	3	114.0	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 & D

Common area	Floor area (m <sup>2</sup> )
Indoor pool building A	227.0
Lift car (No. 2)	-
Managers room	6.0
Hallways building A	1561.0

Common area	Floor area (m <sup>2</sup> )
Gym building A	61.0
Lift car (No. 3)	-
Ground floor lobby building A	216.0
Hallways building D	650.0

Common area	Floor area (m <sup>2</sup> )
Lift car (No. 1)	-
Lift car (No. 4)	-
Ground floor lobby building D	77.0

### Common areas of unit building - Building B & C

Common area	Floor area (m <sup>2</sup> )
Indoor pool building B	195.0
Lift car (No. 6)	-
Ground floor lobby building C	114.0

Common area	Floor area (m <sup>2</sup> )
Gym building B	65.0
Lift car (No. 7)	-
Hallways building B	1422.0

Common area	Floor area (m <sup>2</sup> )
Lift car (No. 5)	-
Ground floor lobby building B	110.0
Hallways building C	222.0

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

Common area	Floor area (m <sup>2</sup> )
Gym changing rooms	65.0
Garbage rooms	179.0
Store rooms	1190.0

Common area	Floor area (m <sup>2</sup> )
Car park area	36489.0
Wast collection areas	1774.0

Common area	Floor area (m <sup>2</sup> )
Switch rooms	112.0
Plant or service room	1322.0

# Schedule of BASIX commitments

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

### (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 & C

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 3. Commitments for multi-dwelling houses

## 4. Commitments for single dwelling houses

## 5. 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 & 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	-	4.5 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.		✓	✓

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, 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
211	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
213	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	yes
317	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	1	yes
577	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	no	no	no	no	0	no
672	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	1	no
673	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	2	yes
1418	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	1	yes



Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
1517	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)	3	1	yes	yes	yes	yes	0	yes
573, 575, 917, 1018, 1118, 1218	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	1	no
215, 472, 475, 521, 527, 576, 720, 818	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	yes

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
202, 203, 205, 206, 210, 302, 303, 305, 306, 402, 403, 405, 406, 417, 418, 420, 473, 502, 503, 505, 506, 517, 518, 519, 520, 602, 617, 618, 702, 703, 717, 718, 802, 803, 1518	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

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
201, 209, 216, 217, 218, 279, 301, 308, 313, 316, 318, 319, 320, 321, 376, 401, 408, 413, 416, 419, 421, 476, 477, 478, 501, 508, 513, 516, 601, 603, 605, 606, 607, 613, 616, 619, 620, 621, 701,	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.	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
705, 706, 707, 713, 716, 719, 801, 805, 813, 816, 1318												
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)	3	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	3.5 star	-	2 star	no	no

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
201	58.0	11.0
203	57.0	15.0
205	45.0	22.0
206	39.0	24.0
207	51.0	17.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
208	34.0	51.0
209	45.0	31.0
210	56.0	17.0
211	49.0	11.0
213	37.0	28.0
215	32.0	17.0
216	26.0	14.0
217	27.0	30.0
218	66.0	15.0
219	62.0	59.0
272	33.0	21.0
273	48.0	37.0
276	52.0	11.0
277	49.0	10.0
278	58.0	14.0
279	55.0	15.0
302	41.0	12.0
305	45.0	17.0
307	32.0	13.0
313	46.0	23.0
315	27.0	51.0
316	45.0	20.0
317	25.0	18.0
318	39.0	12.0
319	37.0	10.0
320	36.0	24.0
321	63.0	11.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
322	64.0	21.0
372	42.0	16.0
373	54.0	23.0
375	45.0	15.0
376	48.0	10.0
405	45.0	16.0
407	34.0	12.0
413	45.0	23.0
416	50.0	24.0
417	24.0	22.0
418	62.0	28.0
420	21.0	13.0
422	63.0	18.0
472	37.0	21.0
475	50.0	23.0
477	52.0	15.0
478	39.0	11.0
506	48.0	20.0
507	39.0	22.0
513	48.0	17.0
517	59.0	20.0
518	46.0	27.0
520	22.0	13.0
521	41.0	30.0
523	63.0	17.0
527	50.0	34.0
575	66.0	20.0



	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
576	54.0	9.0
601	65.0	19.0
602	24.0	27.0
606	26.0	50.0
607	66.0	24.0
616	51.0	22.0
618	46.0	26.0
619	57.0	16.0
620	22.0	14.0
621	43.0	28.0
622	64.0	14.0
623	64.0	17.0
672	32.0	22.0
673	39.0	17.0
701	63.0	27.0
702	54.0	16.0
703	51.0	13.0
705	46.0	18.0
706	46.0	36.0
707	65.0	27.0
716	52.0	21.0
718	47.0	25.0
719	65.0	18.0
720	62.0	19.0
721	60.0	16.0
801	57.0	28.0
802	40.0	17.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
803	65.0	12.0
805	58.0	16.0
813	61.0	13.0
815	37.0	30.0
816	41.0	14.0
817	52.0	44.0
818	53.0	33.0
913	46.0	59.0
915	50.0	30.0
916	44.0	47.0
1016	41.0	28.0
1017	48.0	40.0
1115	59.0	38.0
1116	42.0	30.0
1117	48.0	39.0
1217	49.0	39.0
1317	51.0	35.0
1416	42.0	32.0
1417	50.0	36.0
1418	65.0	31.0
1513	66.0	21.0
1515	53.0	59.0
1516	53.0	31.0
1517	50.0	45.0
275, 502	42.0	12.0
303, 505	46.0	16.0
306, 406	46.0	20.0

	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)
403, 503	47.0	16.0
408, 508	66.0	27.0
415, 515	35.0	30.0
419, 519	56.0	16.0
421, 473	57.0	27.0
476, 522	47.0	13.0
573, 577	57.0	25.0
603, 605	27.0	21.0
613, 713	46.0	22.0
615, 715	36.0	29.0
617, 717	36.0	30.0
308, 1518	65.0	21.0
917, 1018	62.0	33.0
1216, 1316	42.0	29.0
202, 402, 516	38.0	18.0
301, 401, 501	56.0	12.0
918, 1013, 1113	41.0	18.0
1118, 1218, 1318	62.0	31.0
1213, 1313, 1413	42.0	17.0
All other dwellings	38.0	59.0

**(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>Central systems</b>	<b>Size</b>	<b>Configuration</b>	<b>Connection (to allow for...)</b>
Pool (No. 1)	Volume: 117.0 kLs	Location: Indoor pool building A	-
Fire sprinkler system (No. 1)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

<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.		✓	✓

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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
Indoor pool building A	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Gym building A	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
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
Lift car (No. 4)	-	-	light-emitting diode	connected to lift call button	No
Managers room	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Ground floor lobby building A	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	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 A	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. 1)	gearless traction with V V V F motor	Number of levels (including basement): 12

Central energy systems	Type	Specification
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 18
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 19
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 10
Pool (No. 1)	Heating source: electric heat pump	Pump controlled by timer: yes
Sauna (No. 1)	Heating source: gas	Efficiency measure: manual on / timer off

## 2. Commitments for Residential flat buildings - Building B & 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	-	4.5 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.		✓	✓



(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, 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
452	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)	3	1	yes	yes	yes	yes	0	yes
459	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	yes
535	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)	3	1	yes	yes	yes	yes	0	no
538	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	1	no
550	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	2	no
552	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	2	yes
436, 638, 735	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	1	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
555, 1627, 1629	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)	3	1	yes	yes	yes	yes	1	yes
450, 451, 453, 455, 461, 462, 551	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
556, 559, 1027, 1227, 1327, 1427, 1527	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	1	yes

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
236, 237, 238, 239, 240, 241, 253, 255, 256, 257, 258, 259, 260, 261, 335, 336, 359, 433, 435, 635, 636, 733, 1528	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)	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
432, 457, 531, 536, 553, 557, 558, 560, 561, 562, 563, 631, 633, 731, 732, 734, 827, 830, 1030, 1127, 1128, 1130, 1230, 1330, 1430	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	yes

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
227, 230, 231, 232, 235, 247, 266, 269, 327, 330, 331, 332, 342, 363, 367, 431, 437, 438, 439, 440, 458, 460, 463, 527, 532, 539, 540, 541, 627, 632, 639, 640, 641, 642, 727, 736, 737, 738, 739,	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
931												
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	3.5 star	-	2 star	no	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			

(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)
227	31.0	27.0
230	46.0	19.0
233	34.0	16.0
235	32.0	18.0
236	35.0	15.0
237	52.0	15.0
238	60.0	30.0
239	66.0	25.0
240	51.0	16.0
241	33.0	20.0
242	39.0	39.0
243	65.0	23.0
245	65.0	21.0



	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
246	49.0	22.0
247	49.0	27.0
250	30.0	22.0
251	30.0	25.0
252	37.0	32.0
255	51.0	13.0
261	54.0	13.0
263	35.0	20.0
265	43.0	36.0
266	34.0	18.0
267	41.0	17.0
268	39.0	16.0
269	35.0	17.0
327	38.0	18.0
328	65.0	24.0
329	30.0	20.0
330	47.0	13.0
331	49.0	12.0
333	28.0	16.0
335	56.0	13.0
336	61.0	33.0
337	66.0	12.0
338	46.0	27.0
339	60.0	17.0
340	45.0	15.0
341	57.0	14.0
342	46.0	12.0

	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)
351	53.0	17.0
352	48.0	19.0
358	53.0	21.0
360	37.0	17.0
361	42.0	13.0
362	65.0	25.0
363	27.0	12.0
366	47.0	11.0
428	49.0	19.0
429	35.0	14.0
430	46.0	32.0
431	58.0	17.0
435	51.0	6.0
440	52.0	32.0
450	39.0	18.0
451	48.0	29.0
452	65.0	17.0
453	66.0	20.0
455	48.0	14.0
456	50.0	13.0
458	28.0	13.0
459	52.0	19.0
460	55.0	14.0
463	53.0	14.0
527	64.0	29.0
529	62.0	28.0
531	43.0	37.0

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
532	50.0	14.0
536	66.0	26.0
537	39.0	25.0
540	54.0	19.0
541	52.0	31.0
550	51.0	37.0
552	56.0	16.0
553	65.0	19.0
555	66.0	17.0
556	66.0	21.0
557	45.0	26.0
558	61.0	13.0
628	49.0	25.0
631	44.0	35.0
632	59.0	25.0
635	49.0	26.0
636	52.0	12.0
638	39.0	26.0
639	49.0	16.0
640	59.0	18.0
641	55.0	19.0
642	53.0	31.0
728	51.0	24.0
729	57.0	11.0
730	55.0	10.0
731	54.0	32.0
734	58.0	19.0

	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)
738	56.0	19.0
739	66.0	30.0
827	55.0	58.0
828	30.0	31.0
830	61.0	43.0
831	61.0	16.0
928	44.0	43.0
930	59.0	40.0
1028	43.0	26.0
1130	60.0	39.0
1227	59.0	53.0
1327	59.0	55.0
1427	59.0	54.0
1428	47.0	36.0
1429	44.0	14.0
1430	66.0	37.0
1527	59.0	43.0
1528	44.0	27.0
1627	47.0	39.0
1628	37.0	38.0
1629	61.0	27.0
228, 229	66.0	19.0
231, 232	44.0	20.0
253, 736	59.0	17.0
332, 461	48.0	13.0
350, 365	45.0	13.0
353, 457	55.0	54.0

	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)
355, 356	50.0	59.0
367, 551	28.0	12.0
427, 436	51.0	18.0
432, 439	54.0	20.0
433, 733	48.0	26.0
437, 538	50.0	16.0
438, 539	58.0	18.0
462, 629	50.0	12.0
528, 735	57.0	24.0
530, 630	43.0	11.0
535, 732	48.0	27.0
561, 563	29.0	21.0
627, 727	64.0	28.0
359, 1431	62.0	13.0
927, 1127	58.0	55.0
1031, 1131	63.0	15.0
357, 533, 633	54.0	22.0
559, 560, 562	22.0	14.0
829, 929, 1029	32.0	16.0
1030, 1230, 1330	60.0	40.0
1129, 1229, 1329	32.0	15.0
737, 931, 1231, 1331	63.0	14.0
256, 257, 258, 259, 260	43.0	13.0
All other dwellings	31.0	26.0

**(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>Central systems</b>	<b>Size</b>	<b>Configuration</b>	<b>Connection (to allow for...)</b>
Pool (No. 2)	Volume: 117.0 kLs	Location: Indoor pool building B	-
Fire sprinkler system (No. 2)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

<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.		✓	✓

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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
Indoor pool building B	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Gym building B	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Lift car (No. 5)	-	-	light-emitting diode	connected to lift call button	No
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 B	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No
Ground floor lobby building C	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No
Hallways building B	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No
Hallways 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. 5)	gearless traction with V V V F motor	Number of levels (including basement): 19
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 20

Central energy systems	Type	Specification
Lift (No. 7)	gearless traction with V V V F motor	Number of levels (including basement): 9
Pool (No. 2)	Heating source: electric heat pump	Pump controlled by timer: yes
Sauna (No. 2)	Heating source: gas	Efficiency measure: manual on / timer off



## 5. 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: - 1700.0 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 3783.0 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...)
Reticulated alternative water supply	-	Installation of plumbing to make provision for connection to No scheme found reticulated alternative water supply.	
Fire sprinkler system (No. 3)	-	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 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
Gym 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
Switch rooms	ventilation supply only	interlocked to light	fluorescent	manual on / manual off	No
Garbage rooms	ventilation exhaust only	-	fluorescent	motion sensors	No
Waste collection areas	ventilation exhaust only	-	fluorescent	motion sensors	No
Plant or service room	ventilation supply only	interlocked to light	fluorescent	manual on / manual off	No
Store rooms	no mechanical ventilation	-	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: R1.0 (~38 mm); (b) Piping internal to building: R1.0 (~38 mm)

## 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).