



Efficient Living Pty Ltd  
ABN: 82 116 346 082  
ACN: 116 346 082

2 Mactier St  
NARRABEEN NSW 2101

## MERITON APARTMENTS

DA Application for:

### ***Stage 1 – Buildings D & E***

To be built at:

132-138 Killeaton St, ST IVES

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### **BASIX Assessment**

Date of Issue: 8<sup>th</sup> July, 2010

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



<b>PREPARED FOR :</b>	<b>PREPARED BY :</b>
Meriton Apartments Level 11/528 Kent Street North Sydney NSW 2000  <b>Contact :</b> Phone : (02) 9287 2888 Fax : (02) 9287 2768	Efficient Living 2 Mactier St NARRABEEN NSW 2101  <b>Email:</b> tracey@efficientliving.com.au Phone : (02) 9944 0332 Fax : (02) 9944 0293

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## **INTRODUCTION**

Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at 132-138 Killeaton St, ST IVES.

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 Meriton. For further details, refer to the individual BASIX certificates and ABSA reports 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 30% 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 weather 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 (mega joules) 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 30% 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 and the cook top, oven, and clothes drying facilities.

## BASIX Inclusions – Stage 1 - Buildings D & E

All units in buildings D & E have reached the targets as set for new dwellings in NSW.  
The inclusions as outlined in the table below have been incorporated in each unit to allow them to reach their environmental sustainability targets.

Glazing	Doors / windows: Single glazed grey tint: U: 6.600 SHGC: 0.53 throughout except Single glazed low-e grey tint: U: 4.66 SHGC: 0.44 to units 425 & 436
Roof / ceiling insulation	Roof: Light coloured, concrete slab roof Plasterboard ceiling with R2.0 insulation to top floor units and those with exposed balcony over.
Wall / floor insulation	External Wall: Pre-cast concrete – plasterboard lined, no insulation throughout except Foil backed plasterboard to units G58, 358, 406, 419, 420, 437, 438, 454, 463, 466. Internal walls within units: Plasterboard on studs - no insulation Inter- tenancy walls: Hebal - no insulation Floors: Concrete - no insulation
Landscaped areas	Total lawn area: 2066m <sup>2</sup> Total garden area: 7146m <sup>2</sup> Indigenous / Low water Garden: 0m <sup>2</sup>
Tapware	All units and communal areas to have 3 star showers & 4 star tapware & toilets
Rain tank volume	20,000L rain tank capacity shared over Stage 1 & 2.
Harvested roof areas	Un-trafficable areas of the main roof from all buildings are to be plumbed into the rain tank
Rain tank connections	All private and communal area gardens and lawns as well as 2 car washing bays on the site.
Hot water units	1 central gas fired boiler with R0.6 (25mm) insulation to all piping.
Pool, Spa & Sauna	The spa must have a cover. Pool, sauna and spa to have gas heating. 90KL pool. 6.5 KL Spa.
Heating and Cooling	All units to have individual single phase reverse cycle air conditioning: All 1 bedroom units : 5.5 star – Cooling and 5.5 star - Heating (zoned) All 2 bedroom units : 5.5 star – Cooling and 5.5 star - Heating (zoned) All 3 bedroom units : 5.5 star – Cooling and 6 star - Heating (zoned)
Ventilation with-in dwellings	Kitchen range hood to be recirculating with a manual on / off switch All bathrooms and laundries to have individual fans ducted façade or roof with a manual on / timer off switch
Lighting	Florescent lighting provided throughout both buildings communal areas and with-in the units, except for bathrooms and ensuites. All light fittings to be dedicated.
Appliances	Gas cook top and electric oven Well vented fridge spaces Clothes dryers with 2.0 star energy efficiency Dish washers with 3.0 star water efficiency and 3.0 star energy efficiency At least 70% of all occupants are expected to provide clothes washing machines with water efficiency of 2 stars or greater.



Common area Ventilation	Car park to have supply and exhaust air with carbon monoxide monitors & VSD fans. Gym to have air-conditioning operated with a time clock. The garbage rooms to have exhaust fans running constantly. Plant rooms to have exhaust fans interlocked to lights. Unit entries and hallways to have natural ventilation only.
Common area lighting	All car park area lighting to have zoned switching and motion sensors. All lift lighting systems are to be connected to a call switch button. Entries and hallways to have zoned switching with motion sensors. Lighting to all other areas to have manual on / off switches.
Lift motor	All lifts to have gearless traction with VVVF motor.

# \*Assessor Certificate

## Multiple Dwellings

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

Issued in accordance with  
BASIX Thermal Comfort Simulation Method.



### Assessor

**Name:** Tracey Cools **Company:** Efficient Living Pty. Ltd. **ABSA #:** 20101  
**Address:** 2 Mactier St, NARRABEEN NSW 2101  
**Phone:** 02 9944 0332 **Fax:** 02 9944 0293 **Email:** tracey@efficientliving.com.au  
**Declaration of interest:** None

### Client

**Name:** Tom Hutchison **Company:** Meriton Apartments  
**Address:** Level 11, 528 Kent St, SYDNEY NSW 2000  
**Phone:** 02 9287 2568 **Fax:** 02 9287 2777 **Email:** tomh@meriton.com.au

### Project

**Address:** Stage 1 – Buildings D & E – 131-138 Killeaton St, ST IVES 2075  
**Applicant:** Meriton Apartments **LGA:** Ku-ring-gai Council

### Assessment

**Date:** 07/07/10 **File ref:** 749-750 **Software:** BERS Pro **Version:** 4.1

### Documentation

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

**Thermal Performance Spec:**  
 Attached, Affixed to drawings Page#: DA-00 – Cover Sheet  
**Drawings:** (Title, Ref.#, Revision, Issue date, etc)  
 DA-00 to DA-06, DA-10, DA-15, DA-16, DA-20- to DA-32  
**Building Specifications:** (Title, Ref.#, Revision, Issue date, etc)  
 Revision A – 28.06.10

Affix assessor stamp



### ABSA Assessor Certificate Assessor # 20101 Certificate # 94811747 Issued: 08/07/10

#### Thermal performance specifications Page 1 of 4

Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
<b>Building D</b>							
G17	94811747	80	0	40	21	N/A	5
G18	94811747	80	0	40	21	N/A	5
G19	51542241	91	0	55	24	N/A	4
G20	71561467	100	0	62	29	N/A	3.5
G21	99858782	80	0	35	25	N/A	5
G22	99858782	80	0	35	25	N/A	5
G23	99858782	80	0	35	25	N/A	5
G24	99858782	80	0	35	25	N/A	5
G25	36552032	81	11	45	36	N/A	4
G26	24905831	80	0	17	12	N/A	7.5
G27	24905831	80	0	17	12	N/A	7.5
G28	24905831	80	0	17	12	N/A	7.5
G29	10152394	90	0	37	25	N/A	5
G30	49226756	86	0	59	22	N/A	4

**Thermal performance specifications**

Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
G31	51542241	80	0	42	13	N/A	5.5
G32	51542241	80	0	42	13	N/A	5.5
G33	27384528	65	0	47	14	N/A	5
117	57740798	80	0	20	18	N/A	7
118	57740798	80	0	20	18	N/A	7
119	38817454	91	0	44	23	N/A	4.5
120	14122813	100	0	52	28	N/A	4
121	35887854	80	0	28	21	N/A	6
122	35887854	80	0	28	21	N/A	6
123	35887854	80	0	28	21	N/A	6
124	35887854	80	0	28	21	N/A	6
125	92377933	81	11	35	36	N/A	4.5
126	47048247	102	0	10	13	N/A	8
127	72870761	80	0	11	12	N/A	8
128	72870761	80	0	11	12	N/A	8
129	44164540	90	0	28	25	N/A	5.5
130	28348379	86	0	48	22	N/A	4.5
131	68788237	80	0	31	12	N/A	6.5
132	68788237	80	0	31	12	N/A	6.5
133	83346581	84	0	29	12	N/A	6.5
217	57740798	80	0	20	18	N/A	7
218	57740798	80	0	20	18	N/A	7
219	38817454	91	0	44	23	N/A	4.5
220	14122813	100	0	52	28	N/A	4
221	35887854	80	0	28	21	N/A	6
222	35887854	80	0	28	21	N/A	6
223	35887854	80	0	28	21	N/A	6
224	35887854	80	0	28	21	N/A	6
225	92377933	81	11	35	36	N/A	4.5
226	47048247	102	0	10	13	N/A	8
227	72870761	80	0	11	12	N/A	8
228	72870761	80	0	11	12	N/A	8
229	44164540	90	0	28	25	N/A	5.5
230	28348379	86	0	48	22	N/A	4.5
231	68788237	80	0	31	12	N/A	6.5
232	68788237	80	0	31	12	N/A	6.5
233	83346581	84	0	29	12	N/A	6.5
317	65459644	80	0	23	19	N/A	6.5
318	65459644	80	0	23	19	N/A	6.5
319	41422113	91	0	46	25	N/A	4.5
320	74866758	100	0	56	31	N/A	4
321	97786788	80	0	31	23	N/A	5.5
322	97786788	80	0	31	23	N/A	5.5
323	97786788	80	0	31	23	N/A	5.5
324	97786788	80	0	31	23	N/A	5.5

**Thermal performance specifications**

Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
325	71178394	81	11	51	44	N/A	3.5
326	33774424	102	0	13	15	N/A	7.5
327	13544198	80	0	14	13	N/A	7.5
328	46359288	80	0	15	13	N/A	7.5
329	54457468	90	0	35	29	N/A	5
330	30526744	86	0	50	22	N/A	4.5
331	31579336	80	0	33	13	N/A	6
332	31579336	80	0	33	13	N/A	6
333	85388183	84	0	30	13	N/A	6.5
417	37733334	104	0	51	30	N/A	4
418	72158438	91	0	66	41	N/A	3
419	87983478	92	0	64	56	N/A	3
420	93588333	92	0	61	57	N/A	3
421	85403086	92	0	49	42	N/A	3.5
422	48916134	92	0	50	42	N/A	3.5
423	30750559	94	7	60	31	N/A	3.5
424	28792176	90	0	52	16	N/A	4.5
425	31749086	90	0	60	18	N/A	4
<b>Building E</b>							
G01	78931161	80	0	41	21	N/A	5
G02	78931161	80	0	41	21	N/A	5
G03	23541525	91	0	42	35	N/A	4
G04	86966485	100	0	33	33	N/A	5
G05	94811747	80	0	40	21	N/A	5
G06	39938230	95	8	45	22	N/A	4.5
G07	18017151	108	0	48	23	N/A	4.5
G08	96493678	65	0	40	12	N/A	5.5
G09	96493678	65	0	40	12	N/A	5.5
G10	96493678	65	0	40	12	N/A	5.5
G11	28862151	107	10	46	22	N/A	4.5
G12	24905831	80	0	17	12	N/A	7.5
G13	24905831	80	0	17	12	N/A	7.5
G14	34017017	62	0	29	16	N/A	6.5
G15	47741387	36	0	18	17	N/A	7
101	35887854	80	0	28	21	N/A	6
102	35887854	80	0	28	21	N/A	6
103	67715644	91	0	34	32	N/A	5
104	24577890	100	0	27	30	N/A	5.5
105	57740798	80	0	20	18	N/A	7
106	62388683	95	8	35	22	N/A	5.5
107	55128087	108	0	37	24	N/A	5
108	48932521	65	0	26	12	N/A	7
109	48932521	65	0	26	12	N/A	7
110	48932521	65	0	26	12	N/A	7
111	41686526	107	10	36	21	N/A	5.5

**Thermal performance specifications**

Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
112	72870761	80	0	11	12	N/A	8
113	72870761	80	0	11	12	N/A	8
114	10885380	62	0	18	15	N/A	7
115	80323072	73	0	24	14	N/A	7
201	35887854	80	0	28	21	N/A	6
202	35887854	80	0	28	21	N/A	6
203	67715644	91	0	34	32	N/A	5
204	24577890	100	0	27	30	N/A	5.5
205	57740798	80	0	20	18	N/A	7
206	62388683	95	8	35	22	N/A	5.5
207	55128087	108	0	37	24	N/A	5
208	48932521	65	0	26	12	N/A	7
209	48932521	65	0	26	12	N/A	7
210	48932521	65	0	26	12	N/A	7
211	41686526	107	10	36	21	N/A	5.5
212	72870761	80	0	11	12	N/A	8
213	72870761	80	0	11	12	N/A	8
214	10885380	62	0	18	15	N/A	7
215	80323072	73	0	24	14	N/A	7
301	97786788	80	0	31	23	N/A	5.5
302	97786788	80	0	31	23	N/A	5.5
303	58211316	91	0	37	34	N/A	4.5
304	49247658	100	0	34	37	N/A	4.5
305	65459644	80	0	23	19	N/A	6.5
306	66552461	95	8	36	23	N/A	5
307	51454744	108	0	49	31	N/A	4
308	60425722	65	0	39	17	N/A	5.5
309	60425722	65	0	39	17	N/A	5.5
310	60425722	65	0	39	17	N/A	5.5
311	27387206	107	10	38	22	N/A	5
312	13544198	80	0	14	13	N/A	7.5
313	13544198	80	0	14	13	N/A	7.5
314	10885380	62	0	18	15	N/A	7
315	80323072	73	0	24	14	N/A	7
401	57124567	85	0	24	21	N/A	6.5
402	61792857	108	0	61	52	N/A	3
403	77118975	89	5	64	35	N/A	3.5
404	30783512	79	0	33	51	N/A	4
405	75074800	89	0	38	57	N/A	3.5
406	80791790	79	7	58	30	N/A	4
407	73031158	79	7	47	30	N/A	4
408	46183432	90	0	29	28	N/A	5.5

### Thermal Performance Specifications

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

Windows	Product ID	Glass	Frame	U value	SHGC	Area M <sup>2</sup>	Detail
Generic		Single Grey	Aluminium	6.60	0.53	-	Throughout, except
Generic		Single Grey Low-E	Aluminium	4.66	0.44	-	To units 425, 436

Skylights	Product ID	Glass	Frame	U value	SHGC	Area M <sup>2</sup>	Detail
None							

Any U and SHGC values specified on Certificates Issued after 1 May 2007 are according to NFRC 100. All values prior to this date are ANAC. Alternate products may be used if their U value is lower, and the SHGC value is less than 10% higher or lower.

External walls	Construction	Insulation	Colour – solar abs.	Detail
Precast Concrete - plasterboard lined		None	Not specified	Throughout, except
Precast Concrete - plasterboard lined		Foil back plasterboard	Not specified	To G58, 358, 406, 419, 420, 437, 438, 454, 463, 466

Internal walls	Construction	Insulation	Detail
Hebal		None	To inter-tenancy walls
Plasterboard on studs		None	All walls within units

Floors	Construction	Insulation	Covering	Detail
Concrete slab floors throughout		None	Carpet to bedrooms & living areas as per plans	
			Tiles to wet areas & Some living areas as per plans (hatched)	

Ceilings	Construction	Insulation	Detail
Plasterboard with concrete slab		none	Where neighbouring units or bedrooms are above
Plasterboard with concrete slab		R2.0	To top floor units & where balcony / terrace above

Roof	Construction	Insulation	Colour – solar abs.	Detail
Concrete slab		None	Light	As per plans

Window cover	Internal (curtains)	External (awnings, shutters, etc)
Not specified		Adjustable vertical blinds – Attached to edge of balconies – As per plans Fixed horizontal & vertical louvre sunshades – As per plans Adjustable aluminium shutter blinds – As per plans Sliding shutter screens – As per plans

Fixed shading	Eaves (width - inc. gutters, h't above windows)	Verandahs, Pergolas (type, description)
Varying eaves widths and offsets, as per plans		100% covered balconies – As per plans Batten pergolas – As per plans

Overshadowing	Overshadowing structures	Overshadowing trees
N/A		N/A

#### Orientation, Exposure, Ventilation and Infiltration

Orientation of nominal north:	0 degrees
Terrain category:	Suburban
Roof ventilation:	None
Cross ventilation:	Standard
Subfloor:	Enclosed - Carpark
Living area open to entry:	Yes – Conditioned corridor
Doors separate living areas:	No
Stair open to heated areas:	No
Seals to windows and doors:	Yes
Exhaust fans without dampers:	No
Ventilated skylights:	No
Open fire, unflued gas heat:	No
Vented downlights:	No
Wall and ceiling vents:	No

ABSA Assessor stamp



# BASIX Certificate

Certificate number: 322301M

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

Director-General  
Date of issue: Thursday, 08 July 2010



## Score

- ✓ Water: 40 (Target 40)
- ✓ Thermal comfort: pass (Target pass)
- ✓ Energy: 30 (Target 30)

## Description of project

Project address	
Project name	Stage 1 - Building D - Killeaton St
Street address	131-8 Killeaton Street ST IVES 2075
Local Government Area	Ku-ring-gai Council
Plan type and plan number	deposited 748682
Lot no.	2
Section no.	-
Project type	
No. of unit buildings	1
No. of units in unit buildings	77
No. of attached dwelling houses	0
No. of separate dwelling houses	0
Site details	
Site area (m <sup>2</sup> )	22970
Roof area (m <sup>2</sup> )	4727
Non-residential floor area (m <sup>2</sup> )	0
Residential car spaces	75
Non-residential car spaces	0
Common area landscape	
Common area lawn (m <sup>2</sup> )	413
Common area garden (m <sup>2</sup> )	1429
Area of indigenous or low water use species (m <sup>2</sup> )	0
Assessor details	
Assessor number	20101
Certificate number	94811747
Climate zone	56

## Description of project

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

### Unit building - Building D, 77 dwellings, 5 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> )
117	2	80.0	0.0	0	0
121	2	80.0	0.0	0	0
125	2	81.0	11.0	0	0
129	2	90.0	0.0	0	0
133	2	84.0	0.0	0	0
220	2	100.0	0.0	0	0
224	2	80.0	0.0	0	0
228	2	80.0	0.0	0	0
232	2	80.0	0.0	0	0
319	2	91.0	0.0	0	0
323	2	80.0	0.0	0	0
327	2	80.0	0.0	0	0
331	2	80.0	0.0	0	0
418	2	91.0	0.0	0	0
422	2	92.0	0.0	0	0
G17	2	80.0	0.0	0	0
G21	2	80.0	0.0	0	0
G25	2	81.0	11.0	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> )
118	2	80.0	0.0	0	0
122	2	80.0	0.0	0	0
126	3	102.0	0.0	0	0
130	2	86.0	0.0	0	0
217	2	80.0	0.0	0	0
221	2	80.0	0.0	0	0
225	2	81.0	11.0	0	0
229	2	90.0	0.0	0	0
233	2	84.0	0.0	0	0
320	2	100.0	0.0	0	0
324	2	80.0	0.0	0	0
328	2	80.0	0.0	0	0
332	2	80.0	0.0	0	0
419	2	92.0	0.0	0	0
423	3	94.0	7.0	0	0
G18	2	80.0	0.0	0	0
G22	2	80.0	0.0	0	0
G26	2	80.0	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> )
119	2	91.0	0.0	0	0
123	2	80.0	0.0	0	0
127	2	80.0	0.0	0	0
131	2	80.0	0.0	0	0
218	2	80.0	0.0	0	0
222	2	80.0	0.0	0	0
226	3	102.0	0.0	0	0
230	2	86.0	0.0	0	0
317	2	80.0	0.0	0	0
321	2	80.0	0.0	0	0
325	2	81.0	11.0	0	0
329	2	90.0	0.0	0	0
333	2	84.0	0.0	0	0
420	2	92.0	0.0	0	0
424	2	90.0	0.0	0	0
G19	2	91.0	0.0	0	0
G23	2	80.0	0.0	0	0
G27	2	80.0	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> )
120	2	100.0	0.0	0	0
124	2	80.0	0.0	0	0
128	2	80.0	0.0	0	0
132	2	80.0	0.0	0	0
219	2	91.0	0.0	0	0
223	2	80.0	0.0	0	0
227	2	80.0	0.0	0	0
231	2	80.0	0.0	0	0
318	2	80.0	0.0	0	0
322	2	80.0	0.0	0	0
326	3	102.0	0.0	0	0
330	2	86.0	0.0	0	0
417	3	104.0	0.0	0	0
421	2	92.0	0.0	0	0
425	2	90.0	0.0	0	0
G20	2	100.0	0.0	0	0
G24	2	80.0	0.0	0	0
G28	2	80.0	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> )
G29	2	90.0	0.0	0	0
G33	1	65.0	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> )
G30	2	86.0	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> )
G31	2	80.0	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> )
G32	2	80.0	0.0	0	0

## Description of project

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

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

Common area	Floor area (m <sup>2</sup> )
Pool & Spa Area (1/3rd)	43
Switch / Elect. (1/5th)	24
Hall / Lobbies (1/5th)	696

Common area	Floor area (m <sup>2</sup> )
Car park (1/5th)	2237
Garbage (1/5th)	58

Common area	Floor area (m <sup>2</sup> )
Lift car (No. 1)	-
Plant (1/5th)	35

# Schedule of BASIX commitments

## 1. Commitments for unit building - Building D

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 2. Commitments for attached dwelling houses

## 3. Commitments for separate dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

### 1. Commitments for unit building - Building D

#### (a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✓	✓	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✓	✓
(d) The applicant must install an on demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "HW recirculation or diversion" column of the table below.		✓	✓
(e) The applicant must install: <ul style="list-style-type: none"> <li>(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</li> <li>(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.</li> </ul>		✓	✓
(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.	✓	✓	✓

Dwelling no.	Fixtures					Appliances		Individual pool				Individual spa		
	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
420, 421, 422, 423, 424, 425, G17, G18, G19, G20, G21, G22, G23, G24, G25, G26, G27, G28, G29, G30, G31, G32, G33	3 star	4 star	4 star	4 star	no	-	3 star	-	-	-	-	-	-	-

Dwelling no.	Fixtures					Appliances		Individual pool				Individual spa		
	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
117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 317, 318, 319, 320, 321, 322,	3 star	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

Dwelling no.	Fixtures					Appliances		Individual pool				Individual spa		
	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
323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 417, 418, 419														

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

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓

<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must:  (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and  (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓  ✓	
(h) The applicant must install in the dwelling:  (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below;  (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and  (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓  ✓  ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer 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
423	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	3 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	1	no
425	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	0	yes
G33	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	0	no
125, 225, 325, G25	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	2	no
126, 226, 326, 417	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	3 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	0	no
121, 128, 221, 228, 321, 328, G21, G28	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	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
117, 118, 119, 120, 122, 123, 124, 127, 129, 130, 131, 132, 133, 217, 218, 219, 220, 222, 223, 224, 227, 229, 230, 231, 232, 233, 317, 318, 319, 320, 322, 323, 324, 327, 329, 330, 331, 332, 333,	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	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
418, 419, 420, 421, 422, 424, G17, G18, G19, G20, G22, G23, G24, G26, G27, G29, G30, G31, G32												

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	-	2 star	no	no

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

<b>Thermal loads</b>		
<b>Dwelling no.</b>	<b>Area adjusted heating load (in mJ/m<sup>2</sup>/yr)</b>	<b>Area adjusted cooling load (in mJ/m<sup>2</sup>/yr)</b>
319	46	25
320	56	31
325	51	44
326	13	15
327	14	13

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
328	15	13
329	35	29
330	50	22
333	30	13
417	51	30
418	66	41
419	64	56
420	61	57
421	49	42
422	50	42
423	60	31
424	52	16
425	60	18
G19	55	24
G20	62	29
G25	45	36
G29	37	25
G30	59	22
G33	47	14
119, 219	44	23
120, 220	52	28
125, 225	35	36
126, 226	10	13
129, 229	28	25
130, 230	48	22
133, 233	29	12
317, 318	23	19

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
331, 332	33	13
G17, G18	40	21
G31, G32	42	13
G26, G27, G28	17	12
117, 118, 217, 218	20	18
127, 128, 227, 228	11	12
131, 132, 231, 232	31	12
321, 322, 323, 324	31	23
G21, G22, G23, G24	35	25
All other dwellings	28	21

**(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	4 star	4 star	no common laundry facility

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

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

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	4000	To collect run-off from at least: - 832 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 1842 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Pool (No. 1)	Volume: 45 kLs	Location: Pool & Spa Area (1/3rd)	-

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

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Pool & Spa Area (1/3rd)	ventilation supply only	time clock or BMS controlled	fluorescent	time clocks	No
Car park (1/5th)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching with motion sensor	No
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Switch / Elect. (1/5th)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage (1/5th)	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant (1/5th)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Hall / Lobbies (1/5th)	no mechanical ventilation	-	compact fluorescent	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired storage (manifolded)	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm);
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 6
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes

## 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).

# BASIX Certificate

Certificate number: 322575M

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

Director-General  
Date of issue: Thursday, 08 July 2010



## Score

- ✓ Water: 40 (Target 40)
- ✓ Thermal comfort: pass (Target pass)
- ✓ Energy: 30 (Target 30)

## Description of project

Project address	
Project name	Stage 1 - Building E - Killeaton St
Street address	131-8 Killeaton Street ST IVES 2075
Local Government Area	Ku-ring-gai Council
Plan type and plan number	deposited 748682
Lot no.	2
Section no.	-
Project type	
No. of unit buildings	1
No. of units in unit buildings	68
No. of attached dwelling houses	0
No. of separate dwelling houses	0
Site details	
Site area (m <sup>2</sup> )	22970
Roof area (m <sup>2</sup> )	4727
Non-residential floor area (m <sup>2</sup> )	0
Residential car spaces	75
Non-residential car spaces	0
Common area landscape	
Common area lawn (m <sup>2</sup> )	413
Common area garden (m <sup>2</sup> )	1429
Area of indigenous or low water use species (m <sup>2</sup> )	0
Assessor details	
Assessor number	20101
Certificate number	94811747
Climate zone	56

## Description of project

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

### Unit building - Building E, 68 dwellings, 5 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> )
101	2	80.0	0.0	0	0
105	2	80.0	0.0	0	0
109	2	65.0	0.0	0	0
113	2	80.0	0.0	0	0
202	2	80.0	0.0	0	0
206	3	95.0	8.0	0	0
210	2	65.0	0.0	0	0
214	1	62.0	0.0	0	0
303	2	91.0	0.0	0	0
307	3	108.0	0.0	0	0
311	3	107.0	10.0	0	0
315	1	73.0	0.0	0	0
404	2	79.0	0.0	0	0
408	2	90.0	0.0	0	0
G04	2	100.0	0.0	0	0
G08	2	65.0	0.0	0	0
G12	2	80.0	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> )
102	2	80.0	0.0	0	0
106	3	95.0	8.0	0	0
110	2	65.0	0.0	0	0
114	1	62.0	0.0	0	0
203	2	91.0	0.0	0	0
207	3	108.0	0.0	0	0
211	3	107.0	10.0	0	0
215	1	73.0	0.0	0	0
304	2	100.0	0.0	0	0
308	2	65.0	0.0	0	0
312	2	80.0	0.0	0	0
401	2	85.0	0.0	0	0
405	2	89.0	0.0	0	0
G01	2	80.0	0.0	0	0
G05	2	80.0	0.0	0	0
G09	2	65.0	0.0	0	0
G13	2	80.0	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> )
103	2	91.0	0.0	0	0
107	3	108.0	0.0	0	0
111	3	107.0	10.0	0	0
115	1	73.0	0.0	0	0
204	2	100.0	0.0	0	0
208	2	65.0	0.0	0	0
212	2	80.0	0.0	0	0
301	2	80.0	0.0	0	0
305	2	80.0	0.0	0	0
309	2	65.0	0.0	0	0
313	2	80.0	0.0	0	0
402	3	108.0	0.0	0	0
406	2	79.0	7.0	0	0
G02	2	80.0	0.0	0	0
G06	3	95.0	8.0	0	0
G10	2	65.0	0.0	0	0
G14	1	62.0	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> )
104	2	100.0	0.0	0	0
108	2	65.0	0.0	0	0
112	2	80.0	0.0	0	0
201	2	80.0	0.0	0	0
205	2	80.0	0.0	0	0
209	2	65.0	0.0	0	0
213	2	80.0	0.0	0	0
302	2	80.0	0.0	0	0
306	3	95.0	8.0	0	0
310	2	65.0	0.0	0	0
314	1	62.0	0.0	0	0
403	2	89.0	5.0	0	0
407	2	78.0	7.0	0	0
G03	2	91.0	0.0	0	0
G07	3	108.0	0.0	0	0
G11	3	107.0	10.0	0	0
G15	1	36.0	0.0	0	0

## Description of project

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

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

Common area	Floor area (m <sup>2</sup> )
Pool & Spa Area (1/2)	43
Switch / Elect. (1/5th)	24
Hall / Lobbies (1/5th)	696

Common area	Floor area (m <sup>2</sup> )
Car park (1/5th)	2237
Garbage (1/5th)	58

Common area	Floor area (m <sup>2</sup> )
Lift car (No. 1)	-
Plant (1/5th)	35

# Schedule of BASIX commitments

## 1. Commitments for unit building - Building E

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 2. Commitments for attached dwelling houses

## 3. Commitments for separate dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

### 1. Commitments for unit building - Building E

#### (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: <ul style="list-style-type: none"> <li>(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</li> <li>(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.</li> </ul>		✓	✓
(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.	✓	✓	✓

Dwelling no.	Fixtures					Appliances		Individual pool				Individual spa		
	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
404, 405, 406, 407, 408, G01, G02, G03, G04, G05, G06, G07, G08, G09, G10, G11, G12, G13, G14, G15	3 star	4 star	4 star	4 star	no	-	3 star	-	-	-	-	-	-	-

Dwelling no.	Fixtures					Appliances		Individual pool				Individual spa		
	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
101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310,	3 star	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

Dwelling no.	Fixtures					Appliances		Individual pool				Individual spa		
	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
311, 312, 313, 314, 315, 401, 402, 403														

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

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

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

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer 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
402	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	3 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	1	no
406, 407	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	1	yes
106, 206, 306, G06	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	3 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	2	no
107, 207, 307, G07	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	3 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	0	no
111, 211, 311, G11	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	3 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	1	yes
114, 115, 214, 215, 314, 315, G14, G15	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	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
101, 102, 103, 104, 105, 108, 109, 110, 112, 113, 201, 202, 203, 204, 205, 208, 209, 210, 212, 213, 301, 302, 303, 304, 305, 308, 309, 310, 312, 313, 401, 403, 404, 405, 408, G01, G02, G03, G04,	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	no	yes (dedicated)	yes (dedicated)	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
G05, G08, G09, G10, G12, G13												

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	-	2 star	no	no

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

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

<b>Thermal loads</b>		
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
303	37	34
304	34	37
305	23	19
306	36	23
307	49	31
311	38	22
401	24	21
402	61	52
403	64	35
404	33	51
405	38	57
406	58	30
407	47	30

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
408	29	28
G03	42	35
G04	33	33
G05	40	21
G06	45	22
G07	48	23
G11	46	22
G14	29	16
G15	18	17
103, 203	34	32
104, 204	27	30
105, 205	20	18
106, 206	35	22
107, 207	37	24
111, 211	36	21
301, 302	31	23
312, 313	14	13
G01, G02	41	21
G12, G13	17	12
114, 214, 314	18	15
115, 215, 315	24	14
308, 309, 310	39	17
G08, G09, G10	40	12
101, 102, 201, 202	28	21
112, 113, 212, 213	11	12
All other dwellings	26	12

**(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	4 star	4 star	no common laundry facility

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

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

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	4000	To collect run-off from at least: - 832 square metres of roof area of buildings in the development - 0 square metres of impervious area in the development - 0 square metres of garden/lawn area in the development - 0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 1842 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Pool (No. 1)	Volume: 45 kLs	Location: Pool & Spa Area (1/2)	-

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

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Pool & Spa Area (1/2)	ventilation supply only	time clock or BMS controlled	fluorescent	time clocks	No
Car park (1/5th)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching with motion sensor	No
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Switch / Elect. (1/5th)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage (1/5th)	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant (1/5th)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Hall / Lobbies (1/5th)	no mechanical ventilation	-	compact fluorescent	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired storage (manifolded)	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm);
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 6
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes

## 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).