



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

13/13 Lagoon St
NARRABEEN NSW 2101

MERITON APARTMENTS

DA Application for:

Stage 1 – Buildings D, E & F & Monastery

To be built at:

132-138 Killeaton St, ST IVES

BASIX Assessment

Date of Issue: 7th November, 2011

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.



PREPARED FOR :	PREPARED BY :
Meriton Apartments Level 11/528 Kent Street Sydney NSW 2000 Contact : Phone : (02) 9287 2888 Fax : (02) 9287 2768	Efficient Living 13/13 Lagoon St NARRABEEN NSW 2101 Email: 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 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 (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 & F

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 unit 409, 410, 424, 425, 523, 532.
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 G09, G18, 109, 209, 301, 309, 409, 410, 424, 425, 523, 532. 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 ² Total garden area: 7146m ² Indigenous / Low water Garden: 0m ²
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: 2.0 star – Cooling and 2.5 star - Heating (zoned) [new] All 2 bedroom units: 2.0 star – Cooling and 2.5 star - Heating (zoned) [new] All 3 bedroom units: 2.0 star – Cooling and 3.0 star - Heating (zoned) [new]
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	Fluorescent lighting provided throughout communal areas. No requirement for fluoro lighting within units.
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	<p>Car park to have supply and exhaust air with carbon monoxide monitors & VSD fans.</p> <p>Gym to have air-conditioning operated with a time clock.</p> <p>The garbage rooms to have exhaust fans running constantly.</p> <p>Plant rooms to have exhaust fans interlocked to lights.</p> <p>Unit entries and hallways to have natural ventilation only.</p>
Common area lighting	<p>All car park area lighting to have zoned switching and motion sensors.</p> <p>All lift lighting systems are to be connected to a call switch button.</p> <p>Entries and hallways to have zoned switching with motion sensors.</p> <p>Lighting to all other areas to have manual on / off switches.</p>
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.
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 & F – 131-138 Killeaton St, ST IVES 2075		
Applicant:	Meriton Apartments	LGA:	Ku-ring-gai Council
Assessment			
Date:	07/02/11	File ref:	749-750
Software:	BERS Pro		Version:
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:

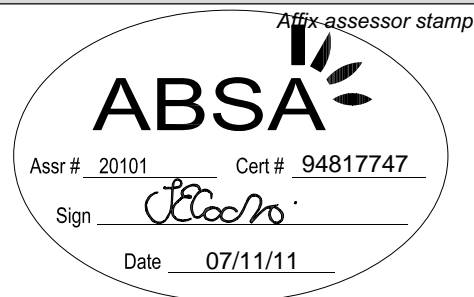
Attached, Affixed to drawings Page#: DA-00 – Cover Sheet

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 B – 03.12.10 – revised for D.O.P requirements



ABSA Assessor Certificate		Assessor # 20101		Certificate # 94811747		Issued: 07/11/11	
Thermal performance specifications						Page 1 of 4	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
Building D							
G23	94811747	80	0	40	21	N/A	5
G24	94811747	80	0	40	21	N/A	5
G25	51542241	91	0	55	24	N/A	4
G26	71561467	100	0	62	29	N/A	3.5
G27	99858782	80	0	35	25	N/A	5
G28	99858782	80	0	35	25	N/A	5
G29	99858782	80	0	35	25	N/A	5
G30	74032506	86	0	49	30	N/A	4
G32	63704295	65	0	63	28	N/A	3.5
G33	26366326	57	0	31	10	N/A	6.5
G34	24905831	80	0	17	12	N/A	7.5
G35	34542763	84	0	20	12	N/A	7.5
G36	75532582	79	3	41	22	N/A	5
G37	40553484	78	8	61	22	N/A	4

ABSA Assessor Certificate		Assessor #		Certificate # 94811747		Issued: 07/11/11	
Thermal performance specifications						Page 2 of 4	
Unit number(s)	Certificate number	Floor area (M²)		Predict. loads (MJ/M²/y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
G38	51542241	80	0	42	13	N/A	5.5
G39	51542241	80	0	42	13	N/A	5.5
123	57740798	80	0	20	18	N/A	7
124	57740798	80	0	20	18	N/A	7
125	38817454	91	0	44	23	N/A	4.5
126	14122813	100	0	52	28	N/A	4
127	35887854	80	0	28	21	N/A	6
128	35887854	80	0	28	21	N/A	6
129	35887854	80	0	28	21	N/A	6
130	96713286	86	0	41	29	N/A	4.5
132	96943221	81	0	21	13	N/A	7
133	39748243	102	0	19	14	N/A	7
134	72870761	80	0	11	12	N/A	8
135	47485423	84	0	11	15	N/A	8
136	88265467	79	3	34	24	N/A	5
137	75416118	78	8	56	24	N/A	4
138	68788237	80	0	31	12	N/A	6.5
139	68788237	80	0	31	12	N/A	6.5
223	57740798	80	0	20	18	N/A	7
224	57740798	80	0	20	18	N/A	7
225	38817454	91	0	44	23	N/A	4.5
226	14122813	100	0	52	28	N/A	4
227	35887854	80	0	28	21	N/A	6
228	35887854	80	0	28	21	N/A	6
229	35887854	80	0	28	21	N/A	6
230	96713286	86	0	41	29	N/A	4.5
232	96943221	81	0	21	13	N/A	7
233	39748243	102	0	19	14	N/A	7
234	72870761	80	0	11	12	N/A	8
235	47485423	84	0	11	15	N/A	8
236	88265467	79	3	34	24	N/A	5
237	75416118	78	8	56	24	N/A	4
238	68788237	80	0	31	12	N/A	6.5
239	68788237	80	0	31	12	N/A	6.5
323	65459644	80	0	23	19	N/A	6.5
324	65459644	80	0	23	19	N/A	6.5
325	41422113	91	0	46	25	N/A	4.5
326	74866758	100	0	56	31	N/A	4
327	29171643	80	0	38	23	N/A	5
328	81547832	80	0	29	23	N/A	5.5
329	97786788	80	0	31	23	N/A	5.5

ABSA Assessor Certificate		Assessor #		Certificate # 94811747		Issued: 07/11/11	
Thermal performance specifications						Page 3 of 4	
Unit number(s)	Certificate number	Floor area (M²)		Predict. loads (MJ/M²/y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
330	96713286	86	0	41	29	N/A	4.5
332	96943221	81	0	21	13	N/A	7
333	39748243	102	0	19	14	N/A	7
334	13544198	80	0	14	13	N/A	7.5
335	47485423	84	0	11	15	N/A	8
336	34135028	79	3	36	25	N/A	5
337	97424714	78	8	61	29	N/A	3.5
338	31579336	80	0	33	13	N/A	6
339	31579336	80	0	33	13	N/A	6
423	75743874	104	0	58	32	N/A	3.5
424	46479814	83	7	55	30	N/A	4
425	22757255	90	0	59	50	N/A	3
426	82740152	88	0	47	26	N/A	4.5
427	24372576	86	0	63	41	N/A	3
432	22488775	81	0	23	14	N/A	7
433	18614825	77	0	25	23	N/A	6
434	13544198	80	0	14	13	N/A	7.5
435	21175688	84	0	12	15	N/A	7.5
436	30503289	108	0	61	29	N/A	3.5
437	31579336	80	0	33	13	N/A	6
438	31579336	80	0	33	13	N/A	6
523	22757255	90	0	59	50	N/A	3
532	56912213	103	0	66	27	N/A	3.5
533	27715143	92	0	55	39	N/A	3.5
534	87467573	92	0	55	39	N/A	3.5
535	48985782	90	0	58	18	N/A	4
Building E							
G09	52231186	84	0	60	20	N/A	4
G10	51187022	101	0	35	15	N/A	6
G11	34717715	103	0	29	14	N/A	6.5
G12	34717715	103	0	29	14	N/A	6.5
G13	34717715	103	0	29	14	N/A	6.5
G14	34717715	103	0	29	14	N/A	6.5
G15	34717715	103	0	29	14	N/A	6.5
G16	34717715	103	0	29	14	N/A	6.5
G17	34717715	103	0	29	14	N/A	6.5
G18	79847755	111	0	46	28	N/A	4.5
G19	30411290	83	0	36	12	N/A	6
G20	86903362	84	0	38	11	N/A	6
G21	43631456	83	0	39	11	N/A	6
109	24143439	84	0	49	23	N/A	4.5
209	24143439	84	0	49	23	N/A	4.5
210	82524485	101	0	37	16	N/A	5.5
211	31171844	103	0	29	14	N/A	6.5
212	61343176	103	0	28	17	N/A	6
213	61343176	103	0	28	17	N/A	6

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Thermal performance specifications						Page 3 of 4	
Unit number(s)	Certificate number	Floor area (M²)		Predict. loads (MJ/M²/y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
214	61343176	103	0	28	17	N/A	6
215	27723792	103	0	33	16	N/A	6
216	27723792	103	0	33	16	N/A	6
217	78734589	103	0	29	14	N/A	6.5
218	77218250	122	0	58	25	N/A	4
219	70757551	83	0	25	14	N/A	7
220	75530182	84	0	25	12	N/A	7
221	49964232	83	0	27	13	N/A	7
309	95842781	84	0	54	27	N/A	4
409	72012180	84	0	55	22	N/A	4
410	27876978	79	7	56	27	N/A	4
411	50356902	84	0	39	30	N/A	4.5
412	72709839	119	0	29	29	N/A	5.5
Building F							
G01	60833473	87	0	51	29	N/A	4
G02	66193445	86	0	47	17	N/A	5
G03	74475564	85	0	36	15	N/A	6
G04	30276013	53	0	41	24	N/A	5
G05	91441656	76	6	54	23	N/A	4
G06	62219411	74	4	34	25	N/A	5
G07	57574611	64	0	29	19	N/A	6
101	54106645	87	0	39	32	N/A	4.5
102	25616256	86	0	35	19	N/A	5.5
103	68567619	85	0	24	17	N/A	6.5
104	33290338	53	0	25	28	N/A	5.5
105	64266275	76	6	42	27	N/A	4.5
106	11670830	74	4	22	26	N/A	6
107	70244266	64	0	13	21	N/A	7
201	37674824	87	0	44	33	N/A	4
202	63198812	86	0	39	21	N/A	5
203	56517520	85	0	34	24	N/A	5
204	76945616	53	0	27	29	N/A	5.5
205	95146564	76	6	43	28	N/A	4.5
206	11670830	74	4	22	26	N/A	6
207	70244266	64	0	13	21	N/A	7
301	75115751	98	4	49	28	N/A	4
302	56271717	105	0	58	39	N/A	3.5
303	16476245	91	0	62	49	N/A	3

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 ²	Detail
Generic		Single Grey	Aluminium	6.60	0.53	-	Throughout, except
Generic		Single Grey Low-E	Aluminium	4.66	0.44	-	To units 409, 410, 424, 425, 523, 532

Skylights	Product ID	Glass	Frame	U value	SHGC	Area M ²	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 G09, G18, 109, 209, 301, 309, 409, 410, 424, 425, 523, 532

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



*Assessor Certificate

Multiple Dwellings

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<p>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:</p> <p>Thermal Performance Spec: Attached, Affixed to drawings Page#: A-150</p> <p>Drawings: (Title, Ref.#, Revision, Issue date, etc) A-150, A-151</p> <p>Building Specifications: (Title, Ref.#, Revision, Issue date, etc) Revision dated 03/11/11</p>																																																																											
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<table border="1"> <tr> <td colspan="2">ABSA Assessor Certificate</td> <td colspan="2">Assessor # 20101</td> <td colspan="2">Certificate # 37162183</td> <td colspan="2">Issued: 07/11/11</td> </tr> <tr> <td colspan="6">Thermal performance specifications</td> <td colspan="2">Page 1 of 1</td> </tr> <tr> <th rowspan="2">Unit number(s)</th> <th rowspan="2">Certificate number</th> <th colspan="2">Floor area (M²)</th> <th colspan="2">Predict. loads (MJ/M²/y)</th> <th rowspan="2">Concessions</th> <th rowspan="2">Star Rating</th> </tr> <tr> <th>Cond.</th> <th>Uncond.</th> <th>Heat</th> <th>Cool (Sens & Lat)</th> </tr> <tr> <td colspan="8">Monastery Units</td> </tr> <tr> <td>Unit 82</td> <td>37162183</td> <td>69</td> <td>0</td> <td>17</td> <td>24</td> <td>N/A</td> <td>6.5</td> </tr> <tr> <td>Unit 83</td> <td>63824909</td> <td>62</td> <td>5</td> <td>64</td> <td>50</td> <td>N/A</td> <td>3.0</td> </tr> <tr> <td>Unit 84</td> <td>57274846</td> <td>62</td> <td>5</td> <td>56</td> <td>32</td> <td>N/A</td> <td>3.5</td> </tr> <tr> <td>Unit 85</td> <td>24253471</td> <td>68</td> <td>0</td> <td>24</td> <td>28</td> <td>N/A</td> <td>5.5</td> </tr> </table>								ABSA Assessor Certificate		Assessor # 20101		Certificate # 37162183		Issued: 07/11/11		Thermal performance specifications						Page 1 of 1		Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star Rating	Cond.	Uncond.	Heat	Cool (Sens & Lat)	Monastery Units								Unit 82	37162183	69	0	17	24	N/A	6.5	Unit 83	63824909	62	5	64	50	N/A	3.0	Unit 84	57274846	62	5	56	32	N/A	3.5	Unit 85	24253471	68	0	24	28	N/A	5.5
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		Cond.	Uncond.	Heat	Cool (Sens & Lat)																																																																						
Monastery Units																																																																											
Unit 82	37162183	69	0	17	24	N/A	6.5																																																																				
Unit 83	63824909	62	5	64	50	N/A	3.0																																																																				
Unit 84	57274846	62	5	56	32	N/A	3.5																																																																				
Unit 85	24253471	68	0	24	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 ²	Detail
Existing		Single clear	Timber	5.55	0.73	-	As per plans
New		Single grey	Aluminium	6.6	0.53	-	As per plans

Skylights	Product ID	Glass	Frame	U value	SHGC	Area M ²	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
Existing Masonry		None	Medium	As per plans
New light weight construction		R1.5	Medium	As per plans

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		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		R2.5	Install to existing / new ceilings above units

Roof	Construction	Insulation	Colour – solar abs.	Detail
Existing roof tiles		None	Medium	As per plans

Window cover	Internal (curtains)	External (awnings, shutters, etc)
Not specified		N/A

Fixed shading	Eaves (width - inc. gutters, h't above windows)	Verandahs, Pergolas (type, description)
Varying	eaves widths and offsets, as per plans	Enclosed balcony – 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:	None
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

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

Multi Dwelling

Certificate number: 322301M_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 29/06/2009 published by the Department of Planning. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 322301M lodged with the consent authority or certifier on 13 July 2010 with application MP10_0057.

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

Director-General

Date of issue: Monday, 07 November 2011

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



Planning &
Infrastructure

Project summary

Project name	Stage 1 - Building D - Killeaton St_03
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.	-
No. of unit buildings	1
No. of units in unit buildings	81
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 22	Target 20

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

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82 116 346 082

Description of project

Project address

Project name	Stage 1 - Building D - Killeaton St_03
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	81
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Site details

Site area (m²)	22970
Roof area (m²)	4727
Non-residential floor area (m²)	0
Residential car spaces	75
Non-residential car spaces	0

Common area landscape

Common area lawn (m²)	413
Common area garden (m²)	1429
Area of indigenous or low water use species (m²)	250

Assessor details

Assessor number	20101
Certificate number	94811747
Climate zone	56

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 22	Target 20

Description of project

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

Unit building - Building D, 81 dwellings, 6 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
123	2	80.0	0.0	0	0
127	2	80.0	0.0	0	0
132	2	81.0	0.0	0	0
136	2	79.0	3.0	0	0
223	2	80.0	0.0	0	0
227	2	80.0	0.0	0	0
232	2	81.0	0.0	0	0
236	2	79.0	3.0	0	0
323	2	80.0	0.0	0	0
327	2	80.0	0.0	0	0
332	2	81.0	0.0	0	0
336	2	79.0	3.0	0	0
423	3	104.0	0.0	0	0
427	2	86.0	0.0	0	0
435	2	84.0	0.0	0	0
523	2	90.0	0.0	0	0
535	2	90.0	0.0	0	0
G26	2	100.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
124	2	80.0	0.0	0	0
128	2	80.0	0.0	0	0
133	3	102.0	0.0	0	0
137	2	78.0	8.0	0	0
224	2	80.0	0.0	0	0
228	2	80.0	0.0	0	0
233	3	102.0	0.0	0	0
237	2	78.0	8.0	0	0
324	2	80.0	0.0	0	0
328	2	80.0	0.0	0	0
333	3	102.0	0.0	0	0
337	2	78.0	8.0	0	0
424	2	83.0	7.0	0	0
432	2	81.0	0.0	0	0
436	3	108.0	0.0	0	0
532	2	103.0	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 ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
125	2	91.0	0.0	0	0
129	2	80.0	0.0	0	0
134	2	80.0	0.0	0	0
138	2	80.0	0.0	0	0
225	2	91.0	0.0	0	0
229	2	80.0	0.0	0	0
234	2	80.0	0.0	0	0
238	2	80.0	0.0	0	0
325	2	91.0	0.0	0	0
329	2	80.0	0.0	0	0
334	2	80.0	0.0	0	0
338	2	80.0	0.0	0	0
425	2	90.0	0.0	0	0
433	2	77.0	0.0	0	0
437	2	80.0	0.0	0	0
533	2	92.0	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 ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
126	2	100.0	0.0	0	0
130	2	86.0	0.0	0	0
135	2	84.0	0.0	0	0
139	2	80.0	0.0	0	0
226	2	100.0	0.0	0	0
230	2	86.0	0.0	0	0
235	2	84.0	0.0	0	0
239	2	80.0	0.0	0	0
326	2	100.0	0.0	0	0
330	2	86.0	0.0	0	0
335	2	84.0	0.0	0	0
339	2	80.0	0.0	0	0
426	2	88.0	0.0	0	0
434	2	80.0	0.0	0	0
438	2	80.0	0.0	0	0
534	2	92.0	0.0	0	0
G25	2	91.0	0.0	0	0
G29	2	80.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
G30	2	86.0	0.0	0	0
G35	2	84.0	0.0	0	0
G39	2	80.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
G32	2	65.0	0.0	0	0
G36	2	79.0	3.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
G33	1	57.0	0.0	0	0
G37	2	78.0	8.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
G34	2	80.0	0.0	0	0
G38	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 (m²)
Pool & Spa Area (1/2)	86
Lift car (No. 2)	-
Plant (1/5th)	35

Common area	Floor area (m²)
Car park (% of total)	3524
Switch / Elect. (1/5th)	24
Hall / Lobbies (1/5)	658

Common area	Floor area (m²)
Lift car (No. 1)	-
Garbage (1/5th)	58

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:			
(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
435, 436, 437, 438, 523, 532, 533, 534, 535, G23, G24, G25, G26, G27, G28, G29, G30, G32, G33, G34, G35, G36, G37, G38, G39	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	-	3 star	-	-	-	-	-	-	-

	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
123, 124, 125, 126, 127, 128, 129, 130, 132, 133, 134, 135, 136, 137, 138, 139, 223, 224, 225, 226, 227, 228, 229, 230, 232, 233, 234, 235, 236, 237, 238, 239, 323, 324, 325, 326, 327, 328, 329, 330,	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

	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
332, 333, 334, 335, 336, 337, 338, 339, 423, 424, 425, 426, 427, 432, 433, 434														

	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.		✓	✓

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(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 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
133, 233, 333, 423, 433, 436	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	0	0	no	no	no	no	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
123, 124, 125, 126, 127, 128, 129, 130, 132, 134, 135, 136, 137, 138, 139, 223, 224, 225, 226, 227, 228, 229, 230, 232, 234, 235, 236, 237, 238, 239, 323, 324, 325, 326, 327, 328, 329, 330, 332,	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)	0	0	no	no	no	no	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
334, 335, 336, 337, 338, 339, 424, 425, 426, 427, 432, 434, 435, 437, 438, 523, 532, 533, 534, 535, G23, G24, G25, G26, G27, G28, G29, G30, G32, G33, G34, G35, G36, G37, G38, G39												

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

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
325	46	25
326	56	31
327	38	23
328	29	23
329	31	23
336	36	25
423	58	32
424	55	30
426	47	26
427	63	41
432	23	14
433	25	23
435	15	12
532	66	27
535	58	18
G25	55	24
G26	62	29
G30	49	30
G32	63	28
G33	31	10
G34	17	12
G35	20	12
G36	41	22
G37	61	22
125, 225	44	23
126, 226	52	28
134, 234	11	12

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
136, 236	34	24
137, 237	56	24
323, 324	23	19
334, 434	14	13
337, 436	61	29
425, 523	59	50
533, 534	55	39
G23, G24	40	21
G38, G39	42	13
130, 230, 330	41	29
132, 232, 332	21	13
133, 233, 333	19	14
135, 235, 335	11	15
G27, G28, G29	35	25
123, 124, 223, 224	20	18
138, 139, 238, 239	31	12
338, 339, 437, 438	33	13
All other dwellings	28	21

(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 (> 7.5 but ≤ 9 L/min)	4 star	4 star	no common laundry facility

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

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 (> 7.5 but <= 9 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)	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: 90 kLs	Location: Pool & Spa Area (1/2) Pool shaded: no	-

(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 (% of total)	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
Lift car (No. 2)	-	-	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 (1/5)	no mechanical ventilation	-	compact fluorescent	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R0.6 (~25 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 7

Central energy systems	Type	Specification
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 7
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

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

Multi Dwelling

Certificate number: 322575M_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 29/06/2009 published by the Department of Planning. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 322575M lodged with the consent authority or certifier on 13 July 2010 with application MP10_0057.

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

Director-General

Date of issue: Monday, 07 November 2011

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



Project summary

Project name	Stage 1 - Building E - Killeaton St_03
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.	-
No. of unit buildings	2
No. of units in unit buildings	60
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 32	Target 30

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

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82 116 346 082

Description of project

Project address

Project name	Stage 1 - Building E - Killeaton St_03
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	2
No. of units in unit buildings	60
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Site details

Site area (m²)	22970
Roof area (m²)	4727
Non-residential floor area (m²)	0
Residential car spaces	75
Non-residential car spaces	0

Common area landscape

Common area lawn (m²)	413
Common area garden (m²)	1429
Area of indigenous or low water use species (m²)	250

Assessor details

Assessor number	20101
Certificate number	94811747
Climate zone	56

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 32	Target 30

Description of project

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

Unit building - Building E, 36 dwellings, 5 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
82	2	69.0	0.0	0	0
109	2	84.0	0.0	0	0
212	2	103.0	0.0	0	0
216	2	103.0	0.0	0	0
220	2	84.0	0.0	0	0
410	2	79.0	7.0	0	0
G10	2	101.0	0.0	0	0
G14	2	103.0	0.0	0	0
G18	3	111.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
83	2	62.0	5.0	0	0
209	2	84.0	0.0	0	0
213	2	103.0	0.0	0	0
217	2	103.0	0.0	0	0
221	2	83.0	0.0	0	0
411	2	84.0	0.0	0	0
G11	2	103.0	0.0	0	0
G15	2	103.0	0.0	0	0
G19	2	83.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
84	2	62.0	5.0	0	0
210	2	101.0	0.0	0	0
214	2	103.0	0.0	0	0
218	3	122.0	0.0	0	0
309	2	84.0	0.0	0	0
412	3	119.0	0.0	0	0
G12	2	103.0	0.0	0	0
G16	2	103.0	0.0	0	0
G20	2	84.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
85	1	68.0	0.0	0	0
211	2	103.0	0.0	0	0
215	2	103.0	0.0	0	0
219	2	83.0	0.0	0	0
409	2	84.0	0.0	0	0
G09	2	84.0	0.0	0	0
G13	2	103.0	0.0	0	0
G17	2	103.0	0.0	0	0
G21	2	83.0	0.0	0	0

Unit building - Building F, 24 dwellings, 4 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
101	2	87.0	0.0	0	0
105	2	76.0	6.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
102	2	86.0	0.0	0	0
106	2	74.0	4.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
103	2	85.0	0.0	0	0
107	1	64.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
104	1	53.0	0.0	0	0
201	2	87.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
202	2	86.0	0.0	0	0
206	2	74.0	4.0	0	0
303	2	91.0	0.0	0	0
G04	1	53.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
203	2	85.0	0.0	0	0
207	1	64.0	0.0	0	0
G01	2	87.0	0.0	0	0
G05	2	76.0	6.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
204	1	53.0	0.0	0	0
301	3	98.0	4.0	0	0
G02	2	86.0	0.0	0	0
G06	2	74.0	4.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
205	2	76.0	6.0	0	0
302	3	105.0	0.0	0	0
G03	2	85.0	0.0	0	0
G07	1	64.0	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 E

Common area	Floor area (m ²)
Lift car (No. 1)	-

Common areas of unit building - Building F

Common area	Floor area (m ²)
Lift car (No. 2)	-

Common areas of the development (non-building specific)

Common area	Floor area (m ²)
Switch / Elect. (1/5th)	24
Hall / Lobbies (1/5th)	658

Common area	Floor area (m ²)
Garbage (1/5th)	58

Common area	Floor area (m ²)
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 unit building - Building F

(a) Dwellings

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

(b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

3. Commitments for attached dwelling houses

4. Commitments for separate 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 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:			
(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
G09, G10, G11, G12, G13, G14, G15, G16, G17, G18, G19, G20	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	-	3 star	-	-	-	-	-	-	-
82, 83, 84, 85, 109, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 309, 409, 410, 411, 412, G21	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

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

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

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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 on / timer off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	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
82, 211, 215, 309, 409, G09, G13, G17, G21	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	0	0	no	no	no	no	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
83, 84, 85, 109, 209, 210, 212, 213, 214, 216, 217, 218, 219, 220, 221, 410, 411, 412, G10, G11, G12, G14, G15, G16, G18, G19, G20	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)	0	0	no	no	no	no	0	yes

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

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

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
82	17	24
83	64	50
84	56	32
85	24	28
210	37	16

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
218	58	25
219	25	14
220	25	12
221	27	13
309	54	27
409	55	22
410	56	27
411	39	30
412	29	29
G09	60	20
G10	35	15
G18	46	28
G19	36	12
G20	38	11
G21	39	11
109, 209	49	23
215, 216	33	16
212, 213, 214	28	17
All other dwellings	29	14

(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 (> 7.5 but ≤ 9 L/min)	4 star	4 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 6

2. Commitments for unit building - Building F

(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
101, 102, 103, 104, 105, 106	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	-	3 star	-	-	-	-	-	-	-
107, 201, 202, 203, 204, 205, 206, 207, 301, 302, 303, G01, G02, G03, G04, G05, G06, G07	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
None	-	-	-	-	-	-	-	-

(ii) Energy

(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.

Show on DA plans	Show on CC/CDC plans & specs	Certifier check

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(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 on / timer off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	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
101, 102, 104, 201, 202, 204, 301, 302, 303, G01, G02, G04	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	0	0	no	no	no	no	0	yes
103, 105, 106, 107, 203, 205, 206, 207, G03, G05, G06, G07	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)	0	0	no	no	no	no	0	yes

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

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
101	39	32
102	35	19
103	24	17
104	25	28
105	42	27
201	44	33
202	39	21
203	34	24
204	27	29
205	43	28
301	49	28
302	58	39
303	62	49
G01	51	29
G02	47	17
G03	36	15
G04	41	24
G05	54	23
G06	34	25
G07	29	19
106, 206	22	26
All other dwellings	13	21

(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 (> 7.5 but ≤ 9 L/min)	4 star	4 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 2)	-	-	compact fluorescent	connected to lift call button	No

Central energy systems	Type	Specification
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 5

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 (> 7.5 but <= 9 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)	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

(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
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 boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R0.6 (~25 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).