



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 2 – Buildings A, B & C

To be built at:

132-138 Killeaton St, ST IVES

BASIX Assessment

Date of Issue: 9th 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 :
<p>Meriton Apartments Level 11/528 Kent Street Sydney NSW 2000</p> <p>Contact : Phone : (02) 9287 2888 Fax : (02) 9287 2768</p>	<p>Efficient Living 13/13 Lagoon St NARRABEEN NSW 2101</p> <p>Email: tracey@efficientliving.com.au Phone : (02) 9944 0332 Fax : (02) 9944 0293</p>

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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 2 - Buildings A, B & C

All units in buildings A, B & C have reached the targets as set for new dwellings in NSW.

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

Glazing	Doors / windows: Single glazed grey tint: U: 6.600 SHGC: 0.53 throughout except Single glazed low-e grey tint: U: 4.66 SHGC: 0.44 to units 373, 442, 447, 448, 564, 565.
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 373, 376, 442, 447, 448, 449, 469. 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	<p>All lifts to have gearless traction with VVVF motor.</p>

Assessor Certificate

Multiple Dwellings

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

Issued in accordance with
BASIX Thermal Comfort Simulation Method.



Assessor			
Name:	Tracey Cools	Company:	Efficient Living Pty. Ltd.
ABSA #:	20101		
Address:	13/13 Lagoon 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
Phone:	tomh@meriton.com.au		

Project			
Address:	Stage 2 – Buildings A, B & C – 131-138 Killeaton St, ST IVES 2075		
Applicant:	Meriton Apartments	LGA:	Ku-ring-gai Council

Assessment			
Date:	08/11/11	File ref:	749 & 750
Software:	BERS Pro	Version:	4.2

Documentation			
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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:

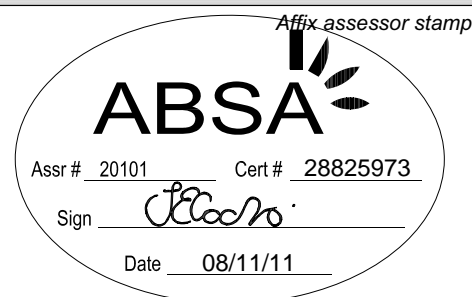
Attached, Affixed to drawings Page#: DA-00 – Cover Sheet

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 – Date 07.11.11



ABSA Assessor Certificate	Assessor # 20101	Certificate # 28825973	Issued: 08/11/11
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Thermal performance specifications	Page 1 of 5
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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 A							
G41	88155258	84	0	43	22	N/A	5
G42	39737875	90	0	52	26	N/A	4
G43	66563763	80	0	42	13	N/A	5.5
G44	98752158	83	0	64	27	N/A	3.5
G45	49718562	58	0	52	28	N/A	4
G47	61836981	68	0	35	30	N/A	5
G48	61836981	68	0	35	30	N/A	5
G49	85379875	61	6	44	34	N/A	4
G50	85598980	79	9	49	37	N/A	4
G51	82652216	105	0	29	27	N/A	5.5
G52	46245362	80	0	32	18	N/A	6
G53	83873440	80	0	39	16	N/A	5.5
141	28012768	76	0	35	26	N/A	5
142	76210957	96	0	41	25	N/A	5
143	68788237	80	0	31	12	N/A	6.5
144	25450061	83	0	59	22	N/A	4

ABSA Assessor Certificate		Assessor #	20101	Certificate # 28825973		Issued: 08/11/11	
Thermal performance specifications							Page 2 of 5
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
145	73837154	58	0	38	27	N/A	5
147	82178543	82	0	16	10	N/A	8
148	53121067	68	0	23	34	N/A	5.5
149	53121067	68	0	23	34	N/A	5.5
150	70558167	61	6	34	38	N/A	4.5
151	69187197	79	9	45	41	N/A	4
152	79057043	105	0	21	20	N/A	6.5
153	57740798	80	0	20	18	N/A	7
154	30443167	80	0	26	16	N/A	6.5
241	28012768	76	0	35	26	N/A	5
242	76210957	96	0	41	25	N/A	5
243	68788237	80	0	31	12	N/A	6.5
244	25450061	83	0	59	22	N/A	4
245	73837154	58	0	38	27	N/A	5
247	82178543	82	0	16	10	N/A	8
248	53121067	68	0	23	34	N/A	5.5
249	53121067	68	0	23	34	N/A	5.5
250	70558167	61	6	34	38	N/A	4.5
251	69187197	79	9	45	41	N/A	4
252	79057043	105	0	21	20	N/A	6.5
253	57740798	80	0	20	18	N/A	7
254	30443167	80	0	26	16	N/A	6.5
341	38234140	76	0	26	38	N/A	5
342	63145781	96	0	44	25	N/A	4.5
343	31579336	80	0	33	13	N/A	6
344	65713520	83	0	65	27	N/A	3.5
345	61038627	58	0	41	27	N/A	4.5
347	53744937	82	0	24	14	N/A	7
348	64919549	68	0	29	34	N/A	5
349	45121280	68	0	25	34	N/A	5
350	24429077	61	6	44	40	N/A	4
351	75241841	79	9	53	42	N/A	3.5
352	50666610	105	0	27	24	N/A	6
353	65459644	80	0	23	19	N/A	6.5
354	65459644	80	0	23	19	N/A	6.5
441	82012352	99	7	58	47	N/A	3
442	98720288	89	0	62	39	N/A	3.5
447	44124310	92	0	47	54	N/A	3.5
448	45668245	92	0	47	54	N/A	3.5
449	62524545	96	11	62	34	N/A	3.5
450	82651605	106	0	52	58	N/A	3

ABSA Assessor Certificate		Assessor # 20101		Certificate # 28825973		Issued: 08/11/11	
Thermal performance specifications						Page 3 of 5	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
Building B							
G56	36994971	89	0	62	23	N/A	4
G57	12844481	88	0	29	21	N/A	6
G58	64764631	80	0	24	11	N/A	7
G59	64764631	80	0	24	11	N/A	7
G60	83151285	78	11	51	25	N/A	4
G61	31106245	106	0	35	22	N/A	5.5
G63	20116342	60	4	55	28	N/A	4
G64	42226885	80	0	32	18	N/A	6
G65	42226885	80	0	32	18	N/A	6
G66	42226885	80	0	32	18	N/A	6
G67	31203226	60	0	63	26	N/A	3.5
G68	16749339	77	3	64	26	N/A	3.5
G69	86069755	80	0	41	21	N/A	5
G70	86069755	80	0	41	21	N/A	5
156	27628775	99	0	44	18	N/A	5
157	30827441	100	0	18	17	N/A	7
158	23709322	80	0	14	11	N/A	8
159	23709322	80	0	14	11	N/A	8
160	77883324	78	11	48	30	N/A	4
161	45516685	60	11	30	22	N/A	5.5
163	80157437	80	0	28	21	N/A	6
164	83826546	104	0	17	20	N/A	7
165	78745874	80	0	20	18	N/A	7
166	78745874	80	0	20	18	N/A	7
167	78745874	80	0	20	18	N/A	7
168	50478745	60	0	51	31	N/A	4
169	72213366	77	3	66	29	N/A	3.5
170	80157437	80	0	28	21	N/A	6
256	27628775	99	0	44	18	N/A	5
257	30827441	100	0	18	17	N/A	7
258	23709322	80	0	14	11	N/A	8
259	23709322	80	0	14	11	N/A	8
260	77883324	78	11	48	30	N/A	4
261	83826546	104	0	17	20	N/A	7
263	45516685	60	11	30	22	N/A	5.5
264	78745874	80	0	20	18	N/A	7
265	78745874	80	0	20	18	N/A	7
266	78745874	80	0	20	18	N/A	7
267	37498361	60	0	63	39	N/A	3.5
268	72213366	77	3	66	29	N/A	3.5
269	80157437	80	0	28	21	N/A	6
270	80157437	80	0	28	21	N/A	6
356	85782143	89	0	49	22	N/A	4.5

ABSA Assessor Certificate		Assessor # 20101		Certificate # 28825973		Issued: 08/11/11	
Thermal performance specifications							Page 4 of 5
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
357	92733586	88	0	25	18	N/A	6.5
358	23534450	80	0	16	10	N/A	7.5
359	33566263	80	0	17	11	N/A	7.5
360	78586864	78	11	63	33	N/A	3.5
361	83826546	104	0	17	20	N/A	7
363	45516685	60	11	30	22	N/A	5.5
364	78745874	80	0	20	18	N/A	7
365	78745874	80	0	20	18	N/A	7
366	78745874	80	0	20	18	N/A	7
367	37498361	60	0	63	39	N/A	3.5
368	72213366	77	3	66	29	N/A	3.5
369	80157437	80	0	28	21	N/A	6
370	80157437	80	0	28	21	N/A	6
456	84766631	82	9	55	57	N/A	4
457	83582265	81	0	36	25	N/A	5
458	31365438	96	0	51	42	N/A	3.5
463	45516685	60	11	30	22	N/A	5.5
464	81757125	57	0	18	23	N/A	6.5
465	32632644	80	0	27	21	N/A	6
466	32632644	80	0	27	21	N/A	6
467	32632644	80	0	27	21	N/A	6
468	75827527	60	0	61	32	N/A	3.5
469	21411551	77	3	56	32	N/A	3.5
470	77371482	80	0	31	21	N/A	5.5
471	70207998	80	0	36	23	N/A	5
563	68128667	90	0	56	52	N/A	3
564	30657632	83	7	44	56	N/A	3.5
565	56655218	101	5	47	58	N/A	3
566	87983478	92	0	64	53	N/A	3
Building C							
G73	94811747	80	0	40	21	N/A	5
G74	23462176	89	0	60	33	N/A	3.5
G75	95751208	89	0	63	35	N/A	3.5
G76	78931161	80	0	41	21	N/A	5
G77	78931161	80	0	41	21	N/A	5
G78	78481410	85	0	58	20	N/A	4
G79	65038155	57	0	43	24	N/A	4.5
G80	82200428	52	0	32	19	N/A	6
G81	72221503	48	0	59	35	N/A	3.5
173	57740798	80	0	20	18	N/A	7
174	60165217	89	0	50	37	N/A	4
175	63583081	89	0	53	39	N/A	3.5
176	35887854	80	0	28	21	N/A	6
177	35887854	80	0	28	21	N/A	6
178	5941083	85	0	51	23	N/A	4.5
179	37715236	57	0	27	32	N/A	5
180	27854594	52	0	20	22	N/A	6.5

ABSA Assessor Certificate		Assessor # 20101		Certificate # 28825973		Issued: 08/11/11	
Thermal performance specifications						Page 5 of 5	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
181	65400716	52	0	44	35	N/A	4
273	77184613	80	0	31	24	N/A	5.5
274	77813186	89	0	54	37	N/A	3.5
275	59217442	89	0	58	40	N/A	3.5
276	97786788	80	0	31	23	N/A	5.5
277	97786788	80	0	31	23	N/A	5.5
278	36687453	85	0	52	23	N/A	4.5
279	56655218	100	0	28	31	N/A	5
280	77119010	52	0	24	20	N/A	6
281	65644616	52	0	53	40	N/A	3.5
373	44499448	94	12	53	39	N/A	3.5
374	70542652	89	0	48	38	N/A	4
375	28895745	87	0	54	48	N/A	3.5
376	98610822	77	12	56	32	N/A	3.5

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
Generic		Single Grey	Aluminium	6.60	0.53	-	Throughout, except
Generic		Single Grey Low-E	Aluminium	4.66	0.44	-	To units 442, 447, 448, 373, 564 & 565

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	442, 447, 448, 449, 373, 376 & 469

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

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

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

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

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

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

Overshadowing	Overshadowing structures	Overshadowing trees
N/A		N/A

Orientation, Exposure, Ventilation and Infiltration

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

ABSA Assessor stamp



BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 322587M_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 322587M 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: Wednesday, 09 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 2 - Building A - 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	57
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 30	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 2 - Building A - 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	57
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	74
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)	0

Assessor details

Assessor number	20101
Certificate number	28825973
Climate zone	56

Project score

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

Description of project

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

Unit building - Building A, 57 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)
141	2	76.0	0.0	0	0
145	1	58.0	0.0	0	0
150	2	61.0	6.0	0	0
154	2	80.0	0.0	0	0
244	2	83.0	0.0	0	0
249	2	68.0	0.0	0	0
253	2	80.0	0.0	0	0
343	2	80.0	0.0	0	0
348	2	68.0	0.0	0	0
352	3	105.0	0.0	0	0
442	2	89.0	0.0	0	0
450	3	106.0	0.0	0	0
G44	2	83.0	0.0	0	0
G49	2	61.0	6.0	0	0
G53	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)
142	2	96.0	0.0	0	0
147	1	82.0	0.0	0	0
151	2	79.0	9.0	0	0
241	2	76.0	0.0	0	0
245	1	58.0	0.0	0	0
250	2	61.0	6.0	0	0
254	2	80.0	0.0	0	0
344	2	83.0	0.0	0	0
349	2	68.0	0.0	0	0
353	2	80.0	0.0	0	0
447	3	92.0	0.0	0	0
G41	2	84.0	0.0	0	0
G45	1	58.0	0.0	0	0
G50	2	79.0	9.0	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)
143	2	80.0	0.0	0	0
148	2	68.0	0.0	0	0
152	3	105.0	0.0	0	0
242	2	96.0	0.0	0	0
247	1	82.0	0.0	0	0
251	2	79.0	9.0	0	0
341	2	76.0	0.0	0	0
345	1	58.0	0.0	0	0
350	2	61.0	6.0	0	0
354	2	80.0	0.0	0	0
448	2	92.0	0.0	0	0
G42	2	90.0	0.0	0	0
G47	2	68.0	0.0	0	0
G51	3	105.0	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)
144	2	83.0	0.0	0	0
149	2	68.0	0.0	0	0
153	2	80.0	0.0	0	0
243	2	80.0	0.0	0	0
248	2	68.0	0.0	0	0
252	3	105.0	0.0	0	0
342	2	96.0	0.0	0	0
347	1	82.0	0.0	0	0
351	2	79.0	9.0	0	0
441	3	99.0	7.0	0	0
449	3	96.0	11.0	0	0
G43	2	80.0	0.0	0	0
G48	2	68.0	0.0	0	0
G52	2	80.0	0.0	0	0

Description of project

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

Common areas of the development (non-building specific)

Common area	Floor area (m ²)
Gym	85
Switch / Elect. (1/5th)	24
Hall / Lobbies (1/5th)	696

Common area	Floor area (m ²)
Lift car (No. 1)	-
Garbage (1/5th)	58

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

Schedule of BASIX commitments

1. Commitments for unit building - Building A

(a) Dwellings

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

(b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

2. Commitments for 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 A

(a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
141, 142, 143, 144, 145, 147, 148, 149, 150, 151, 152, 153, 154, 241, 242, 243, 244	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
245, 247, 248, 249, 250, 251, 252, 253, 254, 341, 342, 343, 344, 345, 347, 348, 349, 350, 351, 352, 353, 354, 441, 442, 447, 448, 449, 450, G41, G42, G43, G44, G45, G47, G48, G49, G50, G51, G52, G53	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: <ul style="list-style-type: none"> (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: <ul style="list-style-type: none"> (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
152, 252, 352, 441, 447, 449, 450, G51	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
141, 142, 143, 144, 145, 147, 148, 149, 150, 151, 153, 154, 241, 242, 243, 244, 245, 247, 248, 249, 250, 251, 253, 254, 341, 342, 343, 344, 345, 347, 348, 349, 350, 351, 353, 354, 442, 448, G41,	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
G42, G43, G44, G45, G47, G48, G49, G50, G52, G53												

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.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(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)
341	26	38
342	44	25
343	33	13
344	65	27
345	41	27
347	24	14
351	61	37
352	27	24
441	58	47
442	62	39
449	62	34

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
450	52	58
G41	43	22
G42	52	26
G43	42	13
G44	64	27
G45	52	28
G49	44	34
G50	49	37
G51	29	27
G52	32	18
G53	39	16
141, 241	35	26
142, 242	41	25
143, 243	31	12
144, 244	59	22
145, 245	38	27
147, 247	16	10
150, 250	34	38
151, 251	45	41
152, 252	21	20
153, 253	20	18
154, 254	26	16
353, 354	23	19
447, 448	47	54
G47, G48	35	30
348, 349, 350	25	26
All other dwellings	23	34

(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

(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
Gym	air conditioning system	time clock or BMS controlled	compact fluorescent	time clocks	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 (1/5th)	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)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 6
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 6

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: 322581M_04

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 322581M_02 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: Wednesday, 09 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 2 - Building B - Killeaton St_04
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	71
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 2 - Building B - Killeaton St_04
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	71
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	74
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)	0

Assessor details

Assessor number	20101
Certificate number	28825973
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 B, 71 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)
156	2	99.0	0.0	0	0
160	2	78.0	11.0	0	0
165	2	80.0	0.0	0	0
169	2	77.0	3.0	0	0
258	2	80.0	0.0	0	0
263	3	104.0	0.0	0	0
267	1	60.0	0.0	0	0
356	2	89.0	0.0	0	0
360	2	78.0	11.0	0	0
365	2	80.0	0.0	0	0
369	2	80.0	0.0	0	0
458	2	96.0	0.0	0	0
466	2	80.0	0.0	0	0
470	2	80.0	0.0	0	0
565	3	101.0	5.0	0	0
G59	2	80.0	0.0	0	0
G64	2	80.0	0.0	0	0
G68	2	77.0	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)
157	2	100.0	0.0	0	0
161	1	60.0	11.0	0	0
166	2	80.0	0.0	0	0
170	2	80.0	0.0	0	0
259	2	80.0	0.0	0	0
264	2	80.0	0.0	0	0
268	2	77.0	3.0	0	0
357	2	88.0	0.0	0	0
361	1	60.0	11.0	0	0
366	2	80.0	0.0	0	0
370	2	80.0	0.0	0	0
463	1	60.0	11.0	0	0
467	2	80.0	0.0	0	0
471	2	80.0	0.0	0	0
566	2	92.0	0.0	0	0
G60	2	78.0	11.0	0	0
G65	2	80.0	0.0	0	0
G69	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)
158	2	80.0	0.0	0	0
163	3	104.0	0.0	0	0
167	1	80.0	0.0	0	0
256	2	99.0	0.0	0	0
260	2	78.0	11.0	0	0
265	2	80.0	0.0	0	0
269	2	80.0	0.0	0	0
358	2	80.0	0.0	0	0
363	3	104.0	0.0	0	0
367	1	60.0	0.0	0	0
456	2	82.0	9.0	0	0
464	1	57.0	0.0	0	0
468	2	60.0	0.0	0	0
563	2	90.0	0.0	0	0
G56	2	89.0	0.0	0	0
G61	2	106.0	0.0	0	0
G66	2	80.0	0.0	0	0
G70	1	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)
159	2	80.0	0.0	0	0
164	2	80.0	0.0	0	0
168	2	60.0	0.0	0	0
257	2	100.0	0.0	0	0
261	1	60.0	11.0	0	0
266	2	80.0	0.0	0	0
270	2	80.0	0.0	0	0
359	2	80.0	0.0	0	0
364	2	80.0	0.0	0	0
368	2	77.0	3.0	0	0
457	2	81.0	0.0	0	0
465	2	80.0	0.0	0	0
469	2	77.0	3.0	0	0
564	2	83.0	7.0	0	0
G57	2	88.0	0.0	0	0
G63	3	60.0	4.0	0	0
G67	2	60.0	0.0	0	0

Description of project

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

Common areas of the development (non-building specific)

Common area	Floor area (m ²)
Pool & Spa Area (1/3rd)	43
Lift car (No. 2)	-
Common Lounge Area	108

Common area	Floor area (m ²)
Car park (% of total)	6711
Switch / Elect. (1/5th)	24
Plant (1/5th)	35

Common area	Floor area (m ²)
Lift car (No. 1)	-
Garbage (1/5th)	58
Hall / Lobbies (1/5th)	796

Schedule of BASIX commitments

1. Commitments for unit building - Building B

(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 B

(a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
466, 467, 468, 469, 470, 471, 563, 564, 565, 566, G56, G57, G59, G60, G61, G63, G64, G65, G66, G67, G68, G69, G70	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
156, 157, 158, 159, 160, 161, 163, 164, 165, 166, 167, 168, 169, 170, 256, 257, 258, 259, 260, 261, 263, 264, 265, 266, 267, 268, 269, 270, 356, 357, 358, 359, 360, 361, 363, 364, 365, 366, 367, 368,	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
369, 370, 456, 457, 458, 463, 464, 465														

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

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

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

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual 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
163, 263, 363, 565, G63	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
156, 157, 158, 159, 160, 161, 164, 165, 166, 167, 168, 169, 170, 256, 257, 258, 259, 260, 261, 264, 265, 266, 267, 268, 269, 270, 356, 357, 358, 359, 360, 361, 364, 365, 366, 367, 368, 369, 370,	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
456, 457, 458, 463, 464, 465, 466, 467, 468, 469, 470, 471, 563, 564, 566, G56, G57, G59, G60, G61, G64, G65, G66, G67, G68, G69, G70												

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)
168	51	31
356	49	22
357	25	18
358	16	10
359	17	11
360	63	33
456	55	57
457	36	25
458	51	42
464	18	23
468	61	32
469	56	32
470	31	21
471	36	23
563	56	52
564	44	56
565	47	58
566	64	53
G56	62	23
G57	29	21
G59	24	11
G60	51	25
G61	35	22
G63	55	28
G67	63	26
G68	64	26
G69	41	21

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
G70	46	23
156, 256	44	18
157, 257	18	17
160, 260	48	30
267, 367	63	39
268, 368	66	29
163, 263, 363	17	20
465, 466, 467	27	21
G64, G65, G66	32	18
158, 159, 258, 259	14	11
161, 261, 361, 463	30	22
169, 170, 269, 270, 369, 370	28	21
All other dwellings	20	18

(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

Central systems	Size	Configuration	Connection (to allow for...)
Spa (No. 1)	Volume: 6.5 kLs	Location: Pool & Spa Area (1/3rd) Spa shaded: no Spa cover: yes	-

(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
Pool & Spa Area (1/3rd)	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
Common Lounge Area	no mechanical ventilation	-	compact fluorescent	zoned switching with daylight sensor	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)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 7
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 6
Spa (No. 1)	Heating system: gas	Pump controlled by timer: yes
Sauna (No. 1)	Heating source: gas	Efficiency measure: manual on / timer off

Notes

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

Legend

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

BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 322590M_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 322590M 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: Wednesday, 09 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 2 - Building C - 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	31
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 30	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 2 - Building C - 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	31
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	74
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)	0

Assessor details

Assessor number	20101
Certificate number	94811747
Climate zone	56

Project score

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

Description of project

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

Unit building - Building C, 31 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)
173	2	80.0	0.0	0	0
177	2	80.0	0.0	0	0
181	1	52.0	0.0	0	0
276	2	80.0	0.0	0	0
280	2	52.0	0.0	0	0
375	2	87.0	0.0	0	0
G75	2	89.0	0.0	0	0
G79	2	57.0	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)
174	2	89.0	0.0	0	0
178	2	85.0	0.0	0	0
273	2	80.0	0.0	0	0
277	2	80.0	0.0	0	0
281	1	52.0	12.0	0	0
376	2	77.0	12.0	0	0
G76	2	80.0	0.0	0	0
G80	1	52.0	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)
175	2	89.0	0.0	0	0
179	2	57.0	0.0	0	0
274	2	89.0	0.0	0	0
278	1	85.0	0.0	0	0
373	3	94.0	12.0	0	0
G73	2	80.0	0.0	0	0
G77	2	80.0	0.0	0	0
G81	1	48.0	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)
176	2	80.0	0.0	0	0
180	1	52.0	0.0	0	0
275	2	89.0	0.0	0	0
279	2	100.0	0.0	0	0
374	2	89.0	0.0	0	0
G74	2	89.0	0.0	0	0
G78	2	85.0	0.0	0	0

Description of project

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

Common areas of the development (non-building specific)

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

Common area	Floor area (m ²)
Switch / Elect. (1/5th)	24
Hall / Lobbies (1/5th)	696

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

Schedule of BASIX commitments

1. Commitments for unit building - Building C

(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 C

(a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
173, 174, 175, 176, 177, 178	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	-	3 star	-	-	-	-	-	-	-
179, 180, 181, 273, 274, 275, 276, 277, 278, 279, 280, 281, 373, 374, 375, 376, G73, G74, G75, G76, G77, G78, G79, G80, G81	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	

(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 (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
181, 373, G81	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
173, 174, 175, 176, 177, 178, 179, 180, 273, 274, 275, 276, 277, 278, 279, 280, 281, 374, 375, 376, G73, G74, G75, G76, G77, G78, G79, G80	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
373	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
181, G81	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.	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
173, 174, 175, 176, 177, 178, 179, 180, 273, 274, 275, 276, 277, 278, 279, 280, 281, 374, 375, 376, G73, G74, G75, G76, G77, G78, G79, G80	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

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	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
181, 373, G81	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	-	2 star	no	no
173, 174, 175, 176, 177, 178, 179, 180, 273, 274, 275, 276, 277, 278, 279, 280, 281, 374, 375, 376, G73, G74, G75, G76, G77, G78, G79, G80	-	-	-	-	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)
174	50	37
178	51	23
179	27	32
180	20	22
181	44	35

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
274	54	37
275	58	40
278	52	23
279	28	31
280	24	20
281	53	40
374	48	38
375	54	48
376	56	32
G73	40	21
G74	60	33
G75	63	35
G78	58	20
G79	43	24
G80	32	19
G81	59	35
173, 273	20	18
175, 373	53	39
G76, G77	41	21
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	no common facility	no common facility	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	no common facility	no common facility	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 2 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
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Switch / Elect. (1/5th)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage (1/5th)	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant (1/5th)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Hall / Lobbies (1/5th)	no mechanical ventilation	-	compact fluorescent	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired 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): 6

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).