



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 6, 9, 10 & 17

To be built at:

61 Mobbs Lane, EPPING

BASIX Assessment

Date of Issue: 27th May, 2010



6.0 Star Average Thermal Comfort Rating

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

PREPARED FOR :	PREPARED BY :
Meriton Apartments Level 11/528 Kent St SYDNEY NSW 2000 Contact : Phone : (02) 9287 2888 Fax : (02) 9287 2768	Efficient Living 13/13 Lagoon St NARRABEEN NSW 2101 Contact: Phone : (02) 9944 0332 Fax : (02) 9944 0293

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INTRODUCTION

Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at 61 Mobbs Lane, EPPING.

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 20% for the energy section.

WATER

The proposed development has achieved the BASIX Water target of 40%.

The water usage of the development is calculated based on the number and efficiency of permanent fixtures and appliances such as: taps, showerheads and toilets, the dish washer and clothes washing machine.

The size of the rain tank and number of connections has a huge impact on your water score as does the area of gardens and lawns and whether or not low-water plant species are incorporated.

THERMAL COMFORT

Thermal Comfort targets are set by the department of planning in the form of heating and cooling caps. The buildings thermal physics is measured using BERS thermal performance assessment tools. This equates an expected level of energy consumption to heat and cool each dwelling per annum expressed in MJ (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 20% to pass this section.

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

BASIX Inclusions – Stage 2 – Buildings 6,9,10,17

All units in buildings 6,9,10,17 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.

Construction general	
Glazing	Doors / windows: Single glazed grey tint U-value: 6.6 SHGC: 0.58
Roof / ceiling insulation	Roof: Concrete slab roof Roof insulation: None Ceiling: Plasterboard Ceiling insulation: R2.0 to top floor units and where exposed balcony / terrace above
Wall / floor insulation	External walls: Precast concrete - plasterboard lined. External wall insulation: None Internal walls within units: Plasterboard on studs - no insulation Inter-tenancy walls: Hebal – no insulation Floors: Concrete
Thermal Comfort upgrades (units)	None
BASIX Water inclusions – Score 40 / 40	
Fixtures (within units)	Showerheads: 3 star (>7.5 but <=9 L/min) Toilets: 4 star Kitchen taps: 4 star Bath taps: 4 star
Fixtures (within common areas)	Showerheads: 3 star (>7.5 but <=9 L/min) Toilets: 4 star Bath taps: 4 star
Appliances (within units)	Dishwashers: 3 star Clothes washers: At least 65% of all occupants are expected to provide clothes washing machines with a water efficiency of 2 stars or greater.
Central rainwater storage	Rainwater storage: 40,000L minimum Collect run-off from: All main roof areas Connected to: - Irrigation of landscaping - 4 car washing bays
Pool / Spa / Sauna	Indoor pool in Building 6 Volume: 180 kL Indoor spa in Building 6 Volume: 10 kL
BASIX Thermal Comfort – Score Pass/Pass	
Average star rating	6.0 stars
BASIX Energy inclusions – Score 20 / 20 (30 / 30 for Build 17)	
Central hot water system	Central gas-fired boiler with R0.6 (~25mm) insulation to ringmain and supply risers.
Pool / Spa heating systems	Pool - electric heat pump heating - pump controlled by a timer Spa - electric heat pump heating - pump controlled by a timer Sauna - gas heating source – with a stand-by function

Lift motor	All lifts to have gearless traction with VVVF motor.
Appliances & other efficiency measures (within units)	Gas cooktop & electric oven Dishwashers: 3 star Clothes dryers: 2 star Well ventilated fridge spaces Indoor or sheltered clothes drying lines
Heating & cooling (within units)	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]
Artificial lighting (within units)	Within units fluorescent lighting to be provided to bedrooms, laundries and bathrooms only.
Ventilation systems (within units)	Bathroom ventilation: Individual fan, ducted to roof or façade – manual on/timer off Laundry ventilation: Individual fan, ducted to roof or façade – manual on/timer off Kitchen ventilation: Individual fan, not ducted roof– manual switch on/off
Artificial lighting (within common areas)	Lifts: compact fluorescent – manual on / off Pool/Gym/Sauna: compact fluorescent – manual on / off Carpark: fluorescent – zoned switching with motion sensors Switch/Comms rooms: fluorescent – manual on / off Garbage rooms: fluorescent – manual on / off Plant rooms: fluorescent – manual on / off Service rooms: fluorescent – manual on / off Lobby/Manager's: compact fluorescent – time clocks Hallways: compact fluorescent – zoned switching with motion sensors
Ventilation systems (within common areas)	Pool/Gym/Sauna: ventilation supply only – time clock or BMS controlled Carpark: ventilation (supply + exhaust) – carbon monoxide monitor + VSD fan Switch/Comms rooms: ventilation exhaust only – interlocked to light Garbage rooms: ventilation exhaust only – with no efficiency measures Plant rooms: ventilation exhaust only – interlocked to light Service rooms: ventilation exhaust only – interlocked to light Lobby/Manager's: air-conditioned – time clock or BMS controlled Hallways: ventilation supply only – time clock or BMS controlled
Alternative energy	A 9.5kW photovoltaic system is required for Stage 2

Assessor Certificate

Multiple Dwellings

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

Issued in accordance with
BASIX Thermal Comfort Simulation Method.



Assessor			
Name:	Tracey Cools	Company:	Efficient Living Pty Ltd
Address:	13/13 Lagoon St, NARRABEEN NSW 2101		
Phone:	02 9944 0332	Fax:	02 9944 0332
Email:	tracey@efficientliving.com.au		
Declaration of interest:	None		
Client			
Name:	Tracy Davey	Company:	Meriton Apartments Pty Ltd
Address:			
Phone:	02 9287 2888	Fax:	02 9287 2777
Email:	tracyd@meriton.com.au		
Project			
Address:	Stage 2 – Buildings 6, 9, 10 & 17 – 61 Mobbs Lane, EPPING		
Applicant:	Meriton Apartments Pty Ltd	LGA:	Parramatta City Council
Assessment			
Date:	26/05/11	File ref:	-
Software:	BERS Pro 4.1		Version:
Documentation			

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

Affix assessor stamp

Thermal Performance Spec:

Attached, Affixed to drawings Page#: A0601 – Drawing List

Drawings: (Title, Ref.#, Revision, Issue date, etc)

A0600, A0601, A0602, A0610 to A0615, A0620, A0621, A0630, A0631, A0900, A0901, A0902, A0910 to A0915, A0920, A0921, A0930 to A0933, A1000, A1001, A1002, A1010 to A1018, A1020, A1021, A1030 to A1032, A1700, A1701, A1702, A1710 to A1716, A1720, A1721, A1730 to A1732

Building Specifications: (Title, Ref.#, Revision, Issue date, etc)

Drawings as at the 23/05/11



ABSA Assessor Certificate		Assessor # 20101		Certificate # 85838773		Issued: 27/05/11	
Thermal performance specifications						Page 1 of 6	
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 6							
G01	85838773	82	0	45	24	N/A	4.5
G02	89114327	93	0	45	29	N/A	4.5
G03	12712173	96	0	23	18	N/A	6.5
G04	74895934	81	0	21	25	N/A	6.0
G05	57317396	76	0	17	25	N/A	6.5
G06	69949398	96	0	40	20	N/A	5.0
G07	11302823	95	0	52	23	N/A	4.0
G08	61484372	95	0	50	25	N/A	4.5
G09	69949398	96	0	40	20	N/A	5.0
G10	31443682	78	0	25	26	N/A	5.5
G11	89467938	76	4	7	31	N/A	7.0
G12	65939185	93	0	23	23	N/A	6.0

ABSA Assessor Certificate		Assessor # 20101		Certificate # 85838773		Issued: 27/05/11	
Thermal performance specifications						Page 2 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
G13	43543432	96	0	42	24	N/A	4.5
G14	76436766	82	0	29	24	N/A	5.5
101	82874344	82	0	33	17	N/A	6.0
102	86763224	93	0	30	23	N/A	5.5
103	75161162	96	0	13	19	N/A	7.0
104	75297853	76	4	16	20	N/A	7.0
105	49149463	76	0	16	22	N/A	7.0
106	84222862	96	0	27	15	N/A	6.5
107	48544459	95	0	33	18	N/A	5.5
108	52614525	95	0	30	19	N/A	6.0
109	84222862	96	0	27	15	N/A	6.5
110	48492167	78	0	17	20	N/A	7.0
111	33052340	76	4	16	23	N/A	7.0
112	23816393	93	0	22	18	N/A	6.5
113	76751256	96	0	43	19	N/A	5.0
114	89126056	82	0	29	18	N/A	6.0
201	82874344	82	0	33	17	N/A	6.0
202	86763224	93	0	30	23	N/A	5.5
203	75161162	96	0	13	19	N/A	7.0
204	75297853	76	4	16	20	N/A	7.0
205	49149463	76	0	16	22	N/A	7.0
206	84222862	96	0	27	15	N/A	6.5
207	48544459	95	0	33	18	N/A	5.5
208	52614525	95	0	30	19	N/A	6.0
209	84222862	96	0	27	15	N/A	6.5
210	48492167	78	0	17	20	N/A	7.0
211	33052340	76	4	16	23	N/A	7.0
212	23816393	93	0	22	18	N/A	6.5
213	76751256	96	0	43	19	N/A	5.0
214	89126056	82	0	29	18	N/A	6.0
301	82874344	82	0	33	17	N/A	6.0
302	86763224	93	0	30	23	N/A	5.5
303	75161162	96	0	13	19	N/A	7.0
304	75297853	76	4	16	20	N/A	7.0
305	49149463	76	0	16	22	N/A	7.0
306	84222862	96	0	27	15	N/A	6.5
307	48544459	95	0	33	18	N/A	5.5
308	52614525	95	0	30	19	N/A	6.0
309	84222862	96	0	27	15	N/A	6.5
310	48492167	78	0	17	20	N/A	7.0
311	33052340	76	4	16	23	N/A	7.0
312	23816393	93	0	22	18	N/A	6.5
313	76751256	96	0	43	19	N/A	5.0
314	89126056	82	0	29	18	N/A	6.0

ABSA Assessor Certificate		Assessor # 20101		Certificate # 85838773		Issued: 27/05/11	
Thermal performance specifications						Page 3 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
401	36223694	82	0	57	28	N/A	4.0
402	98349126	93	0	44	32	N/A	4.0
403	46221689	96	0	14	20	N/A	7.0
404	75297853	76	4	16	20	N/A	7.0
405	61914666	76	0	20	23	N/A	6.5
406	46631828	96	0	38	18	N/A	5.5
407	43487462	95	0	51	27	N/A	4.0
408	34578888	95	0	49	28	N/A	4.0
409	46631828	96	0	38	18	N/A	5.5
410	40432269	78	0	21	20	N/A	6.5
411	33052340	76	4	16	23	N/A	7.0
412	87449811	93	0	23	18	N/A	6.5
413	76650728	96	0	50	27	N/A	4.0
414	62734633	82	0	53	28	N/A	4.0
501	37289383	116	4	42	28	N/A	4.5
502	52028327	81	0	45	35	N/A	4.0
503	68546213	97	0	53	40	N/A	3.5
504	92762799	98	0	28	33	N/A	5.0
505	63234214	81	0	26	32	N/A	5.0
506	11367391	121	4	49	32	N/A	4.0
Building 9							
G01	23316748	57	0	26	15	N/A	6.5
G02	94321597	57	0	24	14	N/A	7.0
G03	25065374	86	8	53	17	N/A	4.5
G04	92252825	77	6	44	17	N/A	5.0
G05	34733438	79	6	25	15	N/A	6.5
G06	46894338	80	0	20	19	N/A	6.5
G07	55641637	77	0	21	19	N/A	6.5
G08	81760826	77	6	23	14	N/A	7.0
G09	48872115	79	6	42	16	N/A	5.5
G10	76754648	77	0	51	17	N/A	4.5
G11	22050726	88	0	25	14	N/A	7.0
101	80725335	100	0	54	13	N/A	4.5
102	73616315	100	0	26	10	N/A	7.0
103	73616315	100	0	26	10	N/A	7.0
104	73616315	100	0	26	10	N/A	7.0
105	82821944	86	8	40	16	N/A	5.5
106	75254810	77	6	31	16	N/A	6.0
107	68247124	79	6	16	14	N/A	7.5
108	87738968	80	0	12	17	N/A	7.5
109	36149305	77	0	11	16	N/A	7.5
110	21152125	77	6	14	14	N/A	7.5
111	35966067	79	6	29	15	N/A	6.5

ABSA Assessor Certificate		Assessor # 20101		Certificate # 85838773		Issued: 27/05/11	
Thermal performance specifications						Page 4 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
112	20112469	77	0	40	15	N/A	5.5
113	50337898	100	0	53	15	N/A	4.5
114	73616315	100	0	26	10	N/A	7.0
115	73616315	100	0	26	10	N/A	7.0
201	31930327	57	0	16	14	N/A	7.5
202	86323141	57	0	14	14	N/A	7.5
203	82821944	86	8	40	16	N/A	5.5
204	75254810	77	6	31	16	N/A	6.0
205	68247124	79	6	16	14	N/A	7.5
206	87738968	80	0	12	17	N/A	7.5
207	36149305	77	0	11	16	N/A	7.5
208	70669868	77	6	20	15	N/A	7.0
209	23445980	79	6	35	16	N/A	6.0
210	20112469	77	0	40	15	N/A	5.5
211	75877837	88	0	16	14	N/A	7.5
301	26275312	100	0	51	14	N/A	5.0
302	46701553	100	0	21	10	N/A	7.5
303	46701553	100	0	21	10	N/A	7.5
304	46701553	100	0	21	10	N/A	7.5
305	82821944	86	8	40	16	N/A	5.5
306	42125512	77	6	37	17	N/A	5.5
307	65661340	79	6	22	15	N/A	7.0
308	87738968	80	0	12	17	N/A	7.5
309	36149305	77	0	11	16	N/A	7.5
310	83325441	101	0	33	15	N/A	6.0
311	20112469	77	0	40	15	N/A	5.5
312	71977126	100	0	49	15	N/A	5.0
313	46701553	100	0	21	10	N/A	7.5
314	46701553	100	0	21	10	N/A	7.5
401	31930327	57	0	16	14	N/A	7.5
402	86323141	57	0	14	14	N/A	7.5
403	82821944	86	8	40	16	N/A	5.5
404	95763896	115	0	37	18	N/A	5.5
405	87738968	80	0	12	17	N/A	7.5
406	29233085	77	0	31	22	N/A	5.5
407	23898870	101	0	49	19	N/A	4.5
408	88451533	77	0	63	22	N/A	4.0
409	43717373	88	0	63	12	N/A	4.5
410	76873520	88	0	36	13	N/A	6.0
501	29324434	100	0	63	15	N/A	4.0
502	90555912	100	0	33	12	N/A	6.0
503	90555912	100	0	33	12	N/A	6.0
504	98487434	100	0	61	18	N/A	4.0

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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)		
505	99872132	86	8	53	22	N/A	4.5
506	83337560	115	0	62	16	N/A	4.0
507	67919853	80	0	32	24	N/A	5.5
Building 10							
G01	44564637	88	0	46	22	N/A	4.5
G02	38887321	98	0	58	22	N/A	4.0
G03	42231622	84	0	33	15	N/A	6.0
G04	93333041	56	0	25	11	N/A	7.0
G05	85958137	82	0	36	16	N/A	5.5
G06	24926785	99	0	55	29	N/A	4.0
G07	61968801	64	0	38	12	N/A	6.0
101	47641136	88	0	34	16	N/A	6.0
102	96985306	92	6	45	20	N/A	5.0
103	54946282	84	0	23	14	N/A	7.0
104	21574446	56	0	14	11	N/A	8.0
105	48114919	82	0	25	14	N/A	7.0
106	51251527	93	6	47	22	N/A	4.5
107	62697581	89	0	41	17	N/A	5.5
201	47641136	88	0	34	16	N/A	6.0
202	96985306	92	6	45	20	N/A	5.0
203	54946282	84	0	23	14	N/A	7.0
204	21574446	56	0	14	11	N/A	8.0
205	48114919	82	0	25	14	N/A	7.0
206	51251527	93	6	47	22	N/A	4.5
207	62697581	89	0	41	17	N/A	5.5
301	47641136	88	0	34	16	N/A	6.0
302	96985306	92	6	45	20	N/A	5.0
303	54946282	84	0	23	14	N/A	7.0
304	21574446	56	0	14	11	N/A	8.0
305	48114919	82	0	25	14	N/A	7.0
306	51251527	93	6	47	22	N/A	4.5
307	62697581	89	0	41	17	N/A	5.5
401	47641136	88	0	34	16	N/A	6.0
402	96985306	92	6	45	20	N/A	5.0
403	54946282	84	0	23	14	N/A	7.0
404	21574446	56	0	14	11	N/A	8.0
405	48114919	82	0	25	14	N/A	7.0
406	51251527	93	6	47	22	N/A	4.5
407	62697581	89	0	41	17	N/A	5.5
501	58635013	88	0	58	14	N/A	4.5
502	26433379	92	6	61	27	N/A	3.5
503	32200004	84	0	47	20	N/A	4.5
504	28456665	56	0	37	26	N/A	5.0

ABSA Assessor Certificate		Assessor # 20101		Certificate # 85838773		Issued: 27/05/11	
Thermal performance specifications						Page 6 of 6	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
505	37637130	82	0	50	18	N/A	4.5
506	27587735	93	6	63	27	N/A	3.5
507	25744413	89	0	63	14	N/A	4.0
Building 17							
G01	79357245	75	4	54	15	N/A	4.5
G02	44672849	70	0	42	12	N/A	5.5
G03	43805174	102	0	49	18	N/A	4.5
G04	34784394	95	0	47	17	N/A	5.0
G05	30122483	80	0	23	15	N/A	7.0
G06	29312327	81	0	32	17	N/A	6.0
G07	88785610	83	0	21	13	N/A	7.0
G08	32817546	95	0	37	15	N/A	5.5
G09	86507595	92	0	62	17	N/A	4.0
G10	98232761	85	0	57	28	N/A	4.0
101	34475528	75	4	37	14	N/A	5.5
102	65312823	81	0	28	10	N/A	7.0
103	64282187	102	0	43	19	N/A	5.0
104	58088583	95	0	27	18	N/A	6.0
105	25753811	80	0	8	13	N/A	8.0
106	18386737	81	0	16	16	N/A	7.5
107	98272931	83	0	7	12	N/A	8.5
108	25903245	95	0	21	14	N/A	7.0
109	27904184	92	0	46	16	N/A	5.0
110	61869276	85	0	42	26	N/A	4.5
201	66767012	75	4	48	31	N/A	4.0
202	52533210	81	0	41	23	N/A	5.0
203	56369401	102	0	50	26	N/A	4.0
204	22511484	95	0	25	27	N/A	5.5
205	25753811	80	0	8	13	N/A	8.0
206	18386737	81	0	16	16	N/A	7.5
207	98272931	83	0	7	12	N/A	8.5
208	47555128	95	0	23	18	N/A	6.5
209	65143466	92	0	51	23	N/A	4.5
210	35538951	85	0	62	29	N/A	3.5
301	94891335	114	4	58	33	N/A	3.5
302	81892658	80	0	26	18	N/A	6.5
303	27482446	81	0	36	21	N/A	5.5
304	88581218	83	0	23	14	N/A	7.0
305	52111781	115	4	43	33	N/A	4.0
					Average star rating		6.0 stars

Assessor # 20101

Certificate # 85838773

Issued: 27/05/11

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 tint	Aluminium	6.60	0.58		As per plans

Skylights	Product ID	Glass	Frame	U value	SHGC	Area M ²	Detail
None							

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

External walls	Construction	Insulation	Colour – solar abs.	Detail
Precast Concrete		None	Not specified	As per plans
Precast Concrete (with cladding)		None	Not specified	As per plans

Internal walls	Construction	Insulation	Detail
Hebal		None	To Inter-tenancy walls
Plasterboard on studs		None	All walls with-in 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 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		Horizontal batten sunshades / pergolas – As per plans
		Fixed vertical sunshades – As per plans
		Adjustable vertical sunshades – 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% Shaded 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: 9 degrees

Terrain category: Suburban

Roof ventilation: None

Cross ventilation: Standard

Subfloor: None

Living area open to entry: Yes – Conditioned Corridor

Doors separate living areas: No

Stair open to heated areas: Yes

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: 366077M

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 <none> published by the Department of Planning. This document is available at www.basix.nsw.gov.au

Director-General

Date of issue: Friday, 27 May 2011



Project summary		
Project name	Building 6 - Stage 2 - 61 Mobbs Lane, EPPING	
Street address	61 Mobbs Lane EPPING 2121	
Local Government Area	Parramatta City Council	
Plan type and plan number	deposited 129023	
Lot no.	2	
Section no.	-	
No. of unit buildings	1	
No. of units in unit buildings	76	
No. of attached dwelling houses	0	
No. of separate dwelling houses	0	
Project score		
Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 20	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	Building 6 - Stage 2 - 61 Mobbs Lane, EPPING
Street address	61 Mobbs Lane EPPING 2121
Local Government Area	Parramatta City Council
Plan type and plan number	deposited 129023
Lot no.	2
Section no.	-

Project type

No. of unit buildings	1
No. of units in unit buildings	76
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Site details

Site area (m²)	7952
Roof area (m²)	1063
Non-residential floor area (m²)	0
Residential car spaces	112
Non-residential car spaces	0

Common area landscape

Common area lawn (m²)	692
Common area garden (m²)	934
Area of indigenous or low water use species (m²)	400

Assessor details

Assessor number	20101
Certificate number	85838773
Climate zone	56

Project score

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

Description of project

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

Unit building - Building 6, 76 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)
101	2	82.0	0.0	0	0
105	2	76.0	0.0	0	0
109	2	96.0	0.0	0	0
113	2	96.0	0.0	0	0
203	2	96.0	0.0	0	0
207	2	95.0	0.0	0	0
211	2	76.0	4.0	0	0
301	2	82.0	0.0	0	0
305	2	76.0	0.0	0	0
309	2	96.0	0.0	0	0
313	2	96.0	0.0	0	0
403	2	96.0	0.0	0	0
407	2	95.0	0.0	0	0
411	2	76.0	4.0	0	0
501	3	116.0	4.0	0	0
505	2	81.0	0.0	0	0
G03	2	96.0	0.0	0	0
G07	2	95.0	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)
102	2	93.0	0.0	0	0
106	2	96.0	0.0	0	0
110	2	78.0	0.0	0	0
114	2	82.0	0.0	0	0
204	2	81.0	0.0	0	0
208	2	95.0	0.0	0	0
212	2	93.0	0.0	0	0
302	2	93.0	0.0	0	0
306	2	96.0	0.0	0	0
310	2	78.0	0.0	0	0
314	2	82.0	0.0	0	0
404	2	81.0	0.0	0	0
408	2	95.0	0.0	0	0
412	2	93.0	0.0	0	0
502	2	81.0	0.0	0	0
506	3	121.0	4.0	0	0
G04	2	81.0	0.0	0	0
G08	2	95.0	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)
103	2	96.0	0.0	0	0
107	2	95.0	0.0	0	0
111	2	76.0	4.0	0	0
201	2	82.0	0.0	0	0
205	2	76.0	0.0	0	0
209	2	96.0	0.0	0	0
213	2	96.0	0.0	0	0
303	2	96.0	0.0	0	0
307	2	95.0	0.0	0	0
311	2	76.0	4.0	0	0
401	2	82.0	0.0	0	0
405	2	76.0	0.0	0	0
409	2	96.0	0.0	0	0
413	2	96.0	0.0	0	0
503	2	97.0	0.0	0	0
G01	2	82.0	0.0	0	0
G05	2	76.0	0.0	0	0
G09	2	96.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
104	2	81.0	0.0	0	0
108	2	95.0	0.0	0	0
112	2	93.0	0.0	0	0
202	2	93.0	0.0	0	0
206	2	96.0	0.0	0	0
210	2	78.0	0.0	0	0
214	2	82.0	0.0	0	0
304	2	81.0	0.0	0	0
308	2	95.0	0.0	0	0
312	2	93.0	0.0	0	0
402	2	93.0	0.0	0	0
406	2	96.0	0.0	0	0
410	2	78.0	0.0	0	0
414	2	82.0	0.0	0	0
504	2	98.0	0.0	0	0
G02	2	93.0	0.0	0	0
G06	2	96.0	0.0	0	0
G10	2	78.0	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)
G11	2	76.0	4.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
G12	2	93.0	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)
G13	2	96.0	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)
G14	2	82.0	0.0	0	0

Description of project

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

Common areas of unit building - Building 6

Common area	Floor area (m²)
Pool/Gym/Sauna (% of total)	194
Lift car (No. 2)	-
Plant rooms	48

Common area	Floor area (m²)
Car park	4620
Switch/Comms rooms	71
Service room	72

Common area	Floor area (m²)
Lift car (No. 1)	-
Garbage rooms	146
Hallways/Lobbies	462

Schedule of BASIX commitments

1. Commitments for unit building - Building 6

(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 6

(a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 201, 202, 203, 204, 205	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
206, 207, 208, 209, 210, 211, 212, 213, 214, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 501, 502, 503,	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
504, 505, 506, G01, G02, G03, G04, G05, G06, G07, G08, G09, G10, G11, G12, G13, G14														

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

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
501, 506	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	3 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	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
101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311,	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	2 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	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
312, 313, 314, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 502, 503, 504, 505, G01, G02, G03, G04, G05, G06, G07, G08, G09, G10, G11, G12, G13, G14												

	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
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	-	2 star	yes	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)
401	57	28
402	44	32
403	14	20
405	20	23
407	51	27
408	49	28
410	21	20
413	50	27
414	53	28
501	42	28
502	45	35
503	53	40
504	28	33
505	26	32
506	49	32
G01	45	24
G02	45	29
G04	21	25
G05	17	25
G07	52	23
G08	50	25
G10	25	26
G11	7	31
G12	23	23
G13	42	24
G14	29	24
406, 409	38	18

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
412, G03	23	18
G06, G09	40	20
101, 201, 301	33	17
102, 202, 302	30	23
103, 203, 303	13	19
105, 205, 305	16	22
107, 207, 307	33	18
108, 208, 308	30	19
110, 210, 310	17	20
112, 212, 312	22	18
113, 213, 313	43	19
114, 214, 314	29	18
104, 204, 304, 404	16	20
111, 211, 311, 411	16	23
All other dwellings	27	15

(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)	10000	To collect run-off from at least: - 1063 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 934 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site
Pool (No. 1)	Volume: 76 kLs	Location: Pool/Gym/Sauna (% of total)	-
Spa (No. 1)	Volume: 10 kLs	Location: Pool/Gym/Sauna (% of total) 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	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Pool/Gym/Sauna (% of total)	ventilation supply only	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Car park	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/Comms rooms	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage rooms	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant rooms	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Service room	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Hallways/Lobbies	ventilation supply only	time clock or BMS controlled	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)

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 9
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 9
Pool (No. 1)	Heating source: electric heat pump	Pump controlled by timer: yes
Spa (No. 1)	Heating system: electric heat pump	Pump controlled by timer: yes
Sauna (No. 1)	Heating source: gas	Efficiency measure: stand-by function

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

(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.	✓	✓	✓

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: 378569M

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 <none> published by the Department of Planning. This document is available at www.basix.nsw.gov.au

Director-General

Date of issue: Friday, 27 May 2011



Project summary		
Project name	Building 9 - Stage 2 - 61 Mobbs Lane, EPPING	
Street address	61 Mobbs Lane EPPING 2121	
Local Government Area	Parramatta City Council	
Plan type and plan number	deposited 129023	
Lot no.	2	
Section no.	-	
No. of unit buildings	1	
No. of units in unit buildings	68	
No. of attached dwelling houses	0	
No. of separate dwelling houses	0	
Project score		
Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 20	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	Building 9 - Stage 2 - 61 Mobbs Lane, EPPING
Street address	61 Mobbs Lane EPPING 2121
Local Government Area	Parramatta City Council
Plan type and plan number	deposited 129023
Lot no.	2
Section no.	-

Project type

No. of unit buildings	1
No. of units in unit buildings	68
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Site details

Site area (m²)	7952
Roof area (m²)	1555
Non-residential floor area (m²)	0
Residential car spaces	89
Non-residential car spaces	0

Common area landscape

Common area lawn (m²)	692
Common area garden (m²)	934
Area of indigenous or low water use species (m²)	400

Assessor details

Assessor number	20101
Certificate number	85838773
Climate zone	56

Project score

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

Description of project

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

Unit building - Building 9, 68 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)
101	2	100.0	0.0	0	0
105	2	86.0	8.0	0	0
109	2	77.0	0.0	0	0
113	2	100.0	0.0	0	0
202	1	57.0	0.0	0	0
206	2	80.0	0.0	0	0
210	2	77.0	0.0	0	0
303	2	100.0	0.0	0	0
307	2	79.0	6.0	0	0
311	2	77.0	0.0	0	0
401	1	57.0	0.0	0	0
405	2	80.0	0.0	0	0
409	2	88.0	0.0	0	0
503	2	100.0	0.0	0	0
507	2	80.0	0.0	0	0
G04	2	77.0	6.0	0	0
G08	2	77.0	6.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
102	2	100.0	0.0	0	0
106	2	77.0	6.0	0	0
110	2	77.0	6.0	0	0
114	2	100.0	0.0	0	0
203	2	86.0	8.0	0	0
207	2	77.0	0.0	0	0
211	2	88.0	0.0	0	0
304	2	100.0	0.0	0	0
308	2	80.0	0.0	0	0
312	2	100.0	0.0	0	0
402	1	57.0	0.0	0	0
406	2	77.0	0.0	0	0
410	2	88.0	0.0	0	0
504	2	100.0	0.0	0	0
G01	1	57.0	0.0	0	0
G05	2	79.0	6.0	0	0
G09	2	79.0	6.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
103	2	100.0	0.0	0	0
107	2	79.0	6.0	0	0
111	2	79.0	6.0	0	0
115	2	100.0	0.0	0	0
204	2	77.0	6.0	0	0
208	2	77.0	6.0	0	0
301	2	100.0	0.0	0	0
305	2	86.0	8.0	0	0
309	2	77.0	0.0	0	0
313	2	100.0	0.0	0	0
403	2	86.0	8.0	0	0
407	2	101.0	0.0	0	0
501	2	100.0	0.0	0	0
505	2	86.0	8.0	0	0
G02	1	57.0	0.0	0	0
G06	2	80.0	0.0	0	0
G10	2	77.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
104	2	100.0	0.0	0	0
108	2	80.0	0.0	0	0
112	2	77.0	0.0	0	0
201	1	57.0	0.0	0	0
205	2	79.0	6.0	0	0
209	2	79.0	6.0	0	0
302	2	100.0	0.0	0	0
306	2	77.0	6.0	0	0
310	2	101.0	0.0	0	0
314	2	100.0	0.0	0	0
404	2	115.0	0.0	0	0
408	2	77.0	0.0	0	0
502	2	100.0	0.0	0	0
506	2	115.0	0.0	0	0
G03	2	86.0	8.0	0	0
G07	2	77.0	0.0	0	0
G11	2	88.0	0.0	0	0

Description of project

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

Common areas of unit building - Building 9

Common area	Floor area (m²)
Car park	4675
Switch/Comms rooms	39
Hallways/Lobbies	527

Common area	Floor area (m²)
Lift car (No. 1)	-
Garbage rooms	128

Common area	Floor area (m²)
Lift car (No. 2)	-
Plant rooms	28

Common areas of the development (non-building specific)

Common area	Floor area (m²)
Pool/Gym/Sauna (% of total)	97

Schedule of BASIX commitments

1. Commitments for unit building - Building 9

(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 9

(a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 201, 202, 203, 204, 205, 206, 207, 208	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
209, 210, 211, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 501, 502, 503, 504, 505, 506, 507, G01, G02, G03, G04, G05, G06,	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
G07, G08, G09, G10, G11														

	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.	✓	✓	✓

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

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
201, 202, 401, 402, G01, G02	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	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
101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 203, 204, 205, 206, 207, 208, 209, 210, 211, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 403,	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	2 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	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
404, 405, 406, 407, 408, 409, 410, 501, 502, 503, 504, 505, 506, 507, G03, G04, G05, G06, G07, G08, G09, G10, G11												

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	yes	no

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
101	54	13
111	29	15
113	53	15
208	20	15
209	35	16

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
301	51	14
306	37	17
307	22	15
310	33	15
312	49	15
404	37	18
406	31	22
407	49	19
408	63	22
409	63	12
410	36	13
501	63	15
504	61	18
505	53	22
506	62	16
507	32	24
G01	26	15
G02	24	14
G03	53	17
G04	44	17
G05	25	15
G06	20	19
G07	21	19
G08	23	14
G09	42	16
G10	51	17
G11	25	14

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
106, 204	31	16
502, 503	33	12
109, 207, 309	11	16
110, 202, 402	14	14
112, 210, 311	40	15
105, 203, 305, 403	40	16
108, 206, 308, 405	12	17
102, 103, 104, 114, 115	26	10
107, 201, 205, 211, 401	16	14
All other dwellings	21	10

(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)	10000	To collect run-off from at least: - 1555 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 1626 square metres of common landscaped area on the site - car washing in 1 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
Car park	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/Comms rooms	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage rooms	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant rooms	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Hallways/Lobbies	ventilation supply only	time clock or BMS controlled	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): 8
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 8

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...)
Pool (No. 1)	Volume: 84 kLs	Location: Pool/Gym/Sauna (% of total)	-

(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.		✓	✓

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

	Common area 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/Gym/Sauna (% of total)	ventilation supply only	time clock or BMS controlled	compact fluorescent	manual on / manual off	No

Central energy systems	Type	Specification
Pool (No. 1)	Heating source: electric heat pump	Pump controlled by timer: yes

Notes

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

Legend

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

BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 378585M

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 <none> published by the Department of Planning. This document is available at www.basix.nsw.gov.au

Director-General

Date of issue: Friday, 27 May 2011



Project summary		
Project name	Building 10 - Stage 2 - 61 Mobbs Lane, EPPING	
Street address	61 Mobbs Lane EPPING 2121	
Local Government Area	Parramatta City Council	
Plan type and plan number	deposited 129023	
Lot no.	2	
Section no.	-	
No. of unit buildings	1	
No. of units in unit buildings	42	
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	Building 10 - Stage 2 - 61 Mobbs Lane, EPPING
Street address	61 Mobbs Lane EPPING 2121
Local Government Area	Parramatta City Council
Plan type and plan number	deposited 129023
Lot no.	2
Section no.	-

Project type

No. of unit buildings	1
No. of units in unit buildings	42
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Site details

Site area (m²)	7952
Roof area (m²)	806
Non-residential floor area (m²)	0
Residential car spaces	54
Non-residential car spaces	0

Common area landscape

Common area lawn (m²)	692
Common area garden (m²)	934
Area of indigenous or low water use species (m²)	400

Assessor details

Assessor number	20101
Certificate number	85838773
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 10, 42 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)
101	2	88.0	0.0	0	0
105	2	82.0	0.0	0	0
202	2	92.0	0.0	0	0
206	2	93.0	6.0	0	0
303	2	84.0	0.0	0	0
307	2	89.0	0.0	0	0
404	1	56.0	0.0	0	0
501	2	88.0	0.0	0	0
505	2	82.0	0.0	0	0
G02	2	98.0	0.0	0	0
G06	2	99.0	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)
102	2	92.0	6.0	0	0
106	2	93.0	6.0	0	0
203	2	84.0	0.0	0	0
207	2	89.0	0.0	0	0
304	1	56.0	0.0	0	0
401	2	88.0	0.0	0	0
405	2	82.0	0.0	0	0
502	2	92.0	0.0	0	0
506	2	93.0	6.0	0	0
G03	2	84.0	0.0	0	0
G07	2	64.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
103	2	84.0	0.0	0	0
107	2	89.0	0.0	0	0
204	1	56.0	0.0	0	0
301	2	88.0	0.0	0	0
305	2	82.0	0.0	0	0
402	2	92.0	0.0	0	0
406	2	93.0	6.0	0	0
503	2	84.0	0.0	0	0
507	2	89.0	0.0	0	0
G04	1	56.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
104	1	56.0	0.0	0	0
201	2	88.0	0.0	0	0
205	2	82.0	0.0	0	0
302	2	92.0	0.0	0	0
306	2	93.0	6.0	0	0
403	2	84.0	0.0	0	0
407	2	89.0	0.0	0	0
504	1	56.0	0.0	0	0
G01	2	88.0	0.0	0	0
G05	2	82.0	0.0	0	0

Description of project

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

Common areas of unit building - Building 10

Common area	Floor area (m²)
Car park	2942
Garbage rooms	60
Hallways	156

Common area	Floor area (m²)
Lift car (No. 1)	-
Plant rooms	46

Common area	Floor area (m²)
Switch/Comms rooms	29
Lobby/Manager's Office	89

Common areas of the development (non-building specific)

Common area	Floor area (m²)
Pool/Spa/Gym (% of total)	97

Schedule of BASIX commitments

1. Commitments for unit building - Building 10

(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 10

(a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
101, 102, 103, 104, 105, 106, 107, 201, 202, 203, 204, 205, 206, 207, 301, 302, 303, 304	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
305, 306, 307, 401, 402, 403, 404, 405, 406, 407, 501, 502, 503, 504, 505, 506, 507, G01, G02, G03, G04, G05, G06, G07	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

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

(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.			

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(b) The applicant must install each hot water system specified for the dwelling in the table below, so that the dwelling's hot water is supplied by that system. If the table specifies a central hot water system for the dwelling, then the applicant must connect that central system to the dwelling, so that the dwelling's hot water is supplied by that central system.	✓	✓	✓
(c) The applicant must install, in each bathroom, kitchen and laundry of the dwelling, the ventilation system specified for that room in the table below. Each such ventilation system must have the operation control specified for it in the table.		✓	✓
(d) The applicant must install the cooling and heating system/s specified for the dwelling under the "Living areas" and "Bedroom areas" headings of the "Cooling" and "Heating" columns in the table below, in/for at least 1 living/bedroom area of the dwelling. If no cooling or heating system is specified in the table for "Living areas" or "Bedroom areas", then no systems may be installed in any such areas. If the term "zoned" is specified beside an air conditioning system, then the system must provide for day/night zoning between living areas and bedrooms.		✓	✓
(e) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Artificial lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that the "primary type of artificial lighting" for each such room in the dwelling is fluorescent lighting or light emitting diode (LED) lighting. If the term "dedicated" is specified for a particular room or area, then the light fittings in that room or area must only be capable of being used for fluorescent lighting or light emitting diode (LED) lighting.		✓	✓
(f) This commitment applies to each room or area of the dwelling which is referred to in a heading to the "Natural lighting" column of the table below (but only to the extent specified for that room or area). The applicant must ensure that each such room or area is fitted with a window and/or skylight.	✓	✓	✓
(g) This commitment applies if the applicant installs a water heating system for the dwelling's pool or spa. The applicant must: (aa) install the system specified for the pool in the "Individual Pool" column of the table below (or alternatively must not install any system for the pool). If specified, the applicant must install a timer, to control the pool's pump; and (bb) install the system specified for the spa in the "Individual Spa" column of the table below (or alternatively must not install any system for the spa). If specified, the applicant must install a timer to control the spa's pump.		✓ ✓	
(h) The applicant must install in the dwelling: (aa) the kitchen cook-top and oven specified for that dwelling in the "Appliances & other efficiency measures" column of the table below; (bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and (cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓ ✓ ✓	✓
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
104, 204, 304, 404, 504, G04	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	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
101, 102, 103, 105, 106, 107, 201, 202, 203, 205, 206, 207, 301, 302, 303, 305, 306, 307, 401, 402, 403, 405, 406, 407, 501, 502, 503, 505, 506, 507, G01, G02, G03, G05, G06, G07	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	2 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	no	0	no

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	-	2 star	yes	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)
501	58	14
502	61	27
503	47	20
504	37	26
505	50	18
506	63	27
507	63	14
G01	46	22
G02	58	22
G03	33	15
G04	25	11
G05	36	16
G06	55	29
G07	38	12
101, 201, 301, 401	34	16
102, 202, 302, 402	45	20
103, 203, 303, 403	23	14
104, 204, 304, 404	14	11
105, 205, 305, 405	25	14
106, 206, 306, 406	47	22
All other dwellings	41	17

(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)	10000	To collect run-off from at least: - 806 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 1626 square metres of common landscaped area on the site - car washing in 1 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
Car park	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching with motion sensor	No
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Switch/Comms rooms	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage rooms	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant rooms	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Lobby/Manager's Office	air conditioning system	time clock or BMS controlled	compact fluorescent	time clocks	No
Hallways	ventilation supply only	time clock or BMS controlled	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): 8

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...)
Pool (No. 1)	Volume: 20 kLs	Location: Pool/Spa/Gym (% of total)	-

(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.		✓	✓

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

	Common area 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/Gym (% of total)	ventilation supply only	time clock or BMS controlled	compact fluorescent	manual on / manual off	No

Central energy systems	Type	Specification
Pool (No. 1)	Heating source: electric heat pump	Pump controlled by timer: yes

Notes

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

Legend

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

BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 378617M

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 <none> published by the Department of Planning. This document is available at www.basix.nsw.gov.au

Director-General

Date of issue: Friday, 27 May 2011



Project summary		
Project name	Building 17 - Stage 2 - 61 Mobbs Lane, EPPING	
Street address	61 Mobbs Lane EPPING 2121	
Local Government Area	Parramatta City Council	
Plan type and plan number	deposited 129023	
Lot no.	2	
Section no.	-	
No. of unit buildings	1	
No. of units in unit buildings	35	
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	Building 17 - Stage 2 - 61 Mobbs Lane, EPPING
Street address	61 Mobbs Lane EPPING 2121
Local Government Area	Parramatta City Council
Plan type and plan number	deposited 129023
Lot no.	2
Section no.	-

Project type

No. of unit buildings	1
No. of units in unit buildings	35
No. of attached dwelling houses	0
No. of separate dwelling houses	0

Site details

Site area (m²)	7952
Roof area (m²)	1116
Non-residential floor area (m²)	0
Residential car spaces	51
Non-residential car spaces	0

Common area landscape

Common area lawn (m²)	692
Common area garden (m²)	934
Area of indigenous or low water use species (m²)	400

Assessor details

Assessor number	20101
Certificate number	85838773
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 17, 35 dwellings, 4 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
101	2	75.0	4.0	0	0
105	2	80.0	0.0	0	0
109	2	92.0	0.0	0	0
203	2	102.0	0.0	0	0
207	2	83.0	0.0	0	0
301	3	114.0	4.0	0	0
305	3	115.0	4.0	0	0
G04	2	95.0	0.0	0	0
G08	2	95.0	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)
102	2	81.0	0.0	0	0
106	2	81.0	0.0	0	0
110	2	85.0	0.0	0	0
204	2	95.0	0.0	0	0
208	2	95.0	0.0	0	0
302	2	80.0	0.0	0	0
G01	2	75.0	4.0	0	0
G05	2	80.0	0.0	0	0
G09	2	92.0	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)
103	2	102.0	0.0	0	0
107	2	83.0	0.0	0	0
201	2	75.0	0.0	0	0
205	2	80.0	0.0	0	0
209	2	92.0	0.0	0	0
303	2	81.0	0.0	0	0
G02	1	70.0	0.0	0	0
G06	2	81.0	0.0	0	0
G10	2	85.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
104	2	95.0	0.0	0	0
108	2	95.0	0.0	0	0
202	2	81.0	0.0	0	0
206	2	81.0	0.0	0	0
210	2	85.0	0.0	0	0
304	2	83.0	0.0	0	0
G03	2	102.0	0.0	0	0
G07	2	83.0	0.0	0	0

Description of project

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

Common areas of unit building - Building 17

Common area	Floor area (m²)
Car park	2750
Garbage rooms	53

Common area	Floor area (m²)
Lift car (No. 1)	-
Plant rooms	76

Common area	Floor area (m²)
Switch/Comms rooms	43
Hallways/Lobbies	347

Schedule of BASIX commitments

1. Commitments for unit building - Building 17

(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 17

(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
209, 210, 301, 302, 303, 304, 305, G01, G02, G03, G04, G05, G06, G07, G08, G09, G10	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-
101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 201, 202, 203, 204, 205, 206, 207, 208	3 star (> 7.5 but <= 9 L/min)	4 star	4 star	4 star	no	-	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
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.		✓	✓
(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;		✓	

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(bb) each appliance for which a rating is specified for that dwelling in the "Appliances & other efficiency measures" column of the table, and ensure that the appliance has that minimum rating; and		✓	✓
(cc) any clothes drying line specified for the dwelling in the "Appliances & other efficiency measures" column of the table.		✓	
(i) If specified in the table, the applicant must carry out the development so that each refrigerator space in the dwelling is "well ventilated".		✓	

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual on / timer off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
G02	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	no	0	no
301, 305	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	1-phase airconditioning 3 Star (new rating) (zoned)	3 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	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
101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 302, 303, 304, G01, G03, G04, G05, G06, G07, G08, G09, G10	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	1-phase airconditioning 2.5 Star (new rating) (zoned)	2 (dedicated)	0	no	yes (dedicated)	yes (dedicated)	no	0	no

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	-	2 star	yes	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)
101	37	14
102	28	10
103	43	19
104	27	18
108	21	14
109	46	16
110	42	26
201	48	31
202	41	23
203	50	26
204	25	27
208	23	18
209	51	23
210	62	29
301	58	33
302	26	18
303	36	21
304	23	14
305	43	33
G01	54	15
G02	42	12
G03	49	18
G04	47	17
G05	23	15
G06	32	17
G07	21	13
G08	37	15

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
G09	62	17
G10	57	28
105, 205	8	13
106, 206	16	16
All other dwellings	7	12

(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)	10000	To collect run-off from at least: - 1116 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 1626 square metres of common landscaped area on the site - car washing in 1 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
Car park	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching with motion sensor	No
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Switch/Comms rooms	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage rooms	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant rooms	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Hallways/Lobbies	ventilation supply only	time clock or BMS controlled	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

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

(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.	✓	✓	✓

Central energy systems	Type	Specification
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 9.5 peak kW

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).