

## MERITON APARTMENTS

DA Application for:

### ***LOFTUS RESIDENTIAL DEVELOPMENT***

To be built at:

5 Loftus Street, Arncliffe

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### **BASIX Assessment**

Date of Issue: 11<sup>th</sup> September 2009

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

PREPARED FOR :	PREPARED BY :
<p>Meriton Apartments Level 11/528 Kent Street North Sydney NSW 2000</p> <p><b>Contact :</b> Phone : (02) 9287 2888 Fax : (02) 9287 2768</p>	<p>Efficient Living Unit 24 B 176 South Creek Road Cromer NSW 2099</p> <p><b>Email:</b> <a href="mailto:tracey@efficientliving.com.au">tracey@efficientliving.com.au</a> Phone : (02) 9971 0003 Fax : (02) 9971 0003</p>

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## **INTRODUCTION**

Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at 5 Loftus Street, Arncliffe.

Heating and cooling loads for the development have been determined using NatHERS thermal simulation software. The report is based on the architectural drawings provided by Meriton and Design Imagery. 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 NatHERS 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 NatHERS 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. Bonus points can be obtained for the cooling loads through natural cross ventilation.

### **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 – Loftus Residential Development***

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

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

Glazing	<p>Sliding Doors / Windows: Light grey 6.38mm Low-E glass: U: 4.6 SHGC: 0.36 to the following units:            Building B: 550, 650, 551, 651, 552, 652, 655, 556, 656            Building C: 401, 501, 412, 512, 413 &amp; 513</p> <p>Sliding Doors / Windows: 4mm single glazed, light grey float glass: U: 6.6 SHGC: 0.5 to the remainder of the complex.</p>
Roof / ceiling insulation	<p>Roof: Light coloured, concrete slab roof</p> <p>Plasterboard ceiling with R2.0 insulation + reflective foil (or R2.5 insulation only) to top floor units and those with exposed balcony over.</p>
Wall / floor insulation	<p>External Wall: Pre-cast concrete</p> <p>External Wall Insulation - Reflective foil to:            Building A – 133, 233, 433, 533, 633, 733, 134, 234, 334, 434, 534, 634, 734, 144, 344, 544, 136, 139, 239, 339, 439, 539, 639, 737, 738            Building B – 451, 550, 650, 551, 651, 555, 655, 556, 656            Building C – G11, 111, 211, 311, 411, 511, 401, 501, G07, 207, 403, 404, 503 &amp; 504            Building D – 124, 224, 324, 424, 125, 225, 325, 425</p> <p>All remaining units do not require external wall insulation</p> <p>Floor: Concrete - no insulation</p>
Thermal Comfort Upgrades	<p>0.5m wide sunhoods required over all 'eat in' sun bays in buildings A &amp; D</p> <p>Units: Building A: A144, A344 &amp; A544</p> <p>Window reductions: All glazing in bathrooms and kitchens is 1900H internally even if full height on the front façade.</p> <p>The following windows are to be a maximum of 1900H internally:            Units C412 &amp; C512 – both bedroom windows            Units C401 &amp; C501 – Bed 2 and study windows</p>
Landscaped areas	<p>Total area of garden and lawn: 1,485 m<sup>2</sup></p> <p>Indigenous / Low water Garden: 0m<sup>2</sup></p>
Tapware	All units and communal areas to have 3 star showers & 4 star tapware & toilets
Rain tank volume	20,000L rain tank capacity
Harvested roof areas	Main roof areas from all buildings are to be plumbed into the rain tank
Rain tank connections	All communal area gardens & 5 car washing bay
Hot water units	1 central gas fired boiler, with R0.6 (25mm) insulation to all piping.

Heating and Cooling	All units to have individual single phase reverse cycle air conditioning: Living & bedrooms – 5 star (zoned)
Ventilation with-in dwellings	Kitchen range hood to be recirculating with a manual on / off switch All bathrooms to have externally ducted exhaust with a manual on / off switch The laundry must have externally ducted exhaust with a manual on / timer off
Lighting	Florescent lighting provided throughout both buildings communal areas and with-in the units. All light fittings to be dedicated.
Appliances	Gas cook top and electric oven Well vented fridge spaces Clothes dryers with 2.0 star energy efficiency Dish washers with 3.0 star water efficiency and 3.0 star energy efficiency Unit owners / tenants responsible for their own clothes washing machines
Common area Ventilation	All car parks to have supply and exhaust air with carbon monoxide monitors and 2 speed fans. Gym & Office to have air-conditioning operated with a time clock. The pool area to have supply and exhaust air operated with a time clock. The garbage rooms to have exhaust fans running constantly. Plant, switch and pump rooms to have exhaust fans interlocked to lights. Unit entries and hallways to have ventilation supply operated with a time clock.
Common area lighting	All car park area lighting to have zoned switching and motion sensors. All lift lighting systems are to be connected to a call switch button. Entry lobbies and hallways to have zoned switching. Lighting to all other areas to have manual on / off switches.
Lift motor	All lifts to have gearless traction with VVVF motor.

# Assessor Certificate

## Multiple Dwellings

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

Issued in accordance with  
BASIX Thermal Comfort Simulation Method.



<b>Assessor</b>							
<b>Name:</b>	Tracey Cools		<b>Company:</b> Efficient Living		<b>ABSA #:</b> 20101		
<b>Address:</b>	24B, 176 South Creek Road, Cromer						
<b>Phone:</b>	9971 0003		<b>Fax:</b>	9971 0003		<b>Email:</b> tracey@efficientliving.com.au	
<b>Declaration of interest:</b>	None						
<b>Client</b>							
<b>Name:</b>	Tom Hutchison		<b>Company:</b> Meriton Apartments Pty Ltd				
<b>Address:</b>	Level 11, 528 Kent Street Sydney 2000						
<b>Phone:</b>	9287 2888		<b>Fax:</b>	9287 2777		<b>Email:</b> tomh@meriton.com.au	
<b>Project</b>							
<b>Address:</b>	5 Loftus Street, ARNCLIFFE NSW 2205			<b>LOT / DP:</b> 101 / 706950			
<b>Applicant:</b>	Meriton Apartments Pty Ltd			<b>LGA:</b> Rockdale City Council			
<b>Assessment</b>							
<b>Date:</b>	09/09/09		<b>File ref:</b>	-		<b>Software:</b>	NatHERS
<b>Version:</b>		2.32B					
<b>Documentation</b>							
<i>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:</i>							
<b>Thermal Performance Spec:</b>		Cover sheet					
<b>Drawings:</b> parking 1, 1A, 2, G/1,2,3,4,5,6,7,8, roof, site, elevations - Issued 09/09/09							
<b>Building Specifications:</b> Only specifications, detailed on Drawings identified above, have been referenced							
<i>Affix assessor stamp</i>							
An oval-shaped assessor stamp. It contains the ABSA logo at the top. Below the logo, it says 'Assr # 20101' and 'Cert # 73231102'. There is a signature line with a handwritten signature and a date line with '11/09/09'.							
<b>ABSA Assessor Certificate    Assessor # 20101    Certificate # 73231102    Issued: 11/09/09</b>							
<b>Thermal performance specifications</b>							
<b>Page 1 of 3</b>							
Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
A132	73231102	86	0	81	44	No	No
A133	60547255	107	0	102	55	No	No
A134	77479166	84	0	96	65	No	No
A135	55222864	53	0	95	71	No	No
A136	41515543	65	0	131	64	No	No
A137	30658472	65	0	37	46	No	No
A138	24455819	90	0	92	16	No	No
A139	93262244	74	0	115	31	No	No
A140	47016382	106	0	77	22	No	No
A141	90426544	68	0	65	56	No	No
A142	47196076	79	0	81	19	No	No
A143	44674962	79	0	81	19	No	No
A144	59858371	109	0	95	94	Yes	Yes

ABSA Assessor Certificate		Assessor #	20101	Certificate #	73231102	Issued:	11/09/09
Thermal performance specifications						Page 2 of 3	
Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
A145	78536133	109	0	96	25	No	No
A146	37741398	109	0	115	26	No	No
A147	37741398	109	0	115	26	No	No
A148	78536133	109	0	96	25	No	No
A149	37741398	109	0	115	26	No	No
A232	73231102	86	0	81	44	No	No
A233	60547255	107	0	102	55	No	No
A234	77479166	84	0	96	65	No	No
A235	83195196	79	0	83	37	No	No
A236	82352612	84.5	0	78	38	No	No
A237	30658472	65	0	37	46	No	No
A238	24455819	90	0	92	16	No	No
A239	93262244	74	0	115	31	No	No
A240	47016382	106	0	77	22	No	No
A241	38815344	78	0	63	64	No	No
A332	73231102	86	0	81	44	No	No
A333	60547255	107	0	102	55	No	No
A334	77479166	84	0	96	65	No	No
A335	83195196	79	0	83	37	No	No
A336	82352612	84.5	0	78	38	No	No
A337	30658472	65	0	37	46	No	No
A338	24455819	90	0	92	16	No	No
A339	93262244	74	0	115	31	No	No
A340	47016382	106	0	77	22	No	No
A341	38815344	78	0	63	64	No	No
A342	47196076	79	0	81	19	No	No
A343	44674962	79	0	81	19	No	No
A344	59858371	109	0	95	94	Yes	Yes
A345	78536133	109	0	96	25	No	No
A346	37741398	109	0	115	26	No	No
A347	37741398	109	0	115	26	No	No
A348	78536133	109	0	96	25	No	No
A349	37741398	109	0	115	26	No	No
A432	73231102	86	0	81	44	No	No
A433	60547255	107	0	102	55	No	No
A434	77479166	84	0	96	65	No	No
A435	83195196	79	0	83	37	No	No
A436	82352612	84.5	0	78	38	No	No
A437	30658472	65	0	37	46	No	No
A438	24455819	90	0	92	16	No	No
A439	93262244	74	0	115	31	No	No
A440	47016382	106	0	77	22	No	No
A441	38815344	78	0	63	64	No	No
A532	73231102	86	0	81	44	No	No

**Thermal performance specifications** **Page 3 of 3**

Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
A533	60547255	107	0	102	55	No	No
A534	77479166	84	0	96	65	No	No
A535	83195196	79	0	83	37	No	No
A536	82352612	84.5	0	78	38	No	No
A537	30658472	65	0	37	46	No	No
A538	24455819	90	0	92	16	No	No
A539	93262244	74	0	115	31	No	No
A540	47016382	106	0	77	22	No	No
A541	38815344	78	0	63	64	No	No
A542	47196076	79	0	81	19	No	No
A543	44674962	79	0	81	19	No	No
A544	37572563	109	0	106	90	Yes	Yes
A545	62963575	109	0	110	24	No	No
A546	37741398	109	0	129	25	No	No
A547	37741398	109	0	129	25	No	No
A548	62963575	109	0	110	24	No	No
A549	53044237	109	0	129	25	No	No
A632	73231102	86	0	81	44	No	No
A633	60547255	107	0	102	55	No	No
A634	77479166	84	0	96	65	No	No
A635	62322216	79	0	99	36	No	No
A636	54244788	84.5	0	92	38	No	No
A637	38473307	65	0	49	44	No	No
A638	79553205	90	0	108	16	No	No
A639	98448141	74	0	131	31	No	No
A640	47016382	106	0	77	22	No	No
A641	83895535	78	0	75	62	No	No
A732	12513719	86	0	97	42	No	No
A733	46898505	107	110	117	54	No	No
A734	44837138	84	0	113	59	No	No
A735	63492323	79	0	99	36	No	No
A736	88214240	84	0	92	38	No	No
A737	23167893	60	0	105	71	No	No
A738	63430735	86	0	106	40	No	No
A739	60288682	77	3	118	61	No	No



Assessor # 20101

Certificate # 73231102

Issued: 11/09/09

**Thermal Performance Specifications**

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

Windows	Product ID	Glass	Frame	U value	SHGC	Area M <sup>2</sup>	Detail
Supplier not specified		Single Light grey low-E	Aluminium	4.6	0.360	Varying	To units listed on the upgrade table
Supplier not specified		Single Light grey tint	Aluminium	6.6	0.529	Varying	To the remainder of the complex

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

Window and skylight U and SHGC values, if specified, are according to ANAC 2005. Alternate products or specifications may be used if their U value is lower, and the SHGC value is less than 10% higher or lower, than the U and SHGC values of the product specified above.

External walls	Construction	Insulation	Colour – solar abs.	Detail
Precast concrete		Foil (Sisalation)	Not specified	To units listed on the upgrade table
Precast concrete		None	Not specified	To the remainder of the complex
Internal walls	Construction	Insulation	Detail	
Plasterboard on studs		None	With-in each unit	
Hebel		None	To inter-tenancy walls	

Floors	Construction	Insulation	Covering	Detail
Concrete slab		None	Tiles to wet areas & entry	
			Carpet to Living rooms	& bedrooms

Ceilings	Construction	Insulation	Detail
Plasterboard		R2.0	To top floor units & where exposed balcony is above
Plasterboard		None	Where neighbouring units are above

Roof	Construction	Insulation	Colour – solar abs.	Detail
Concrete slab roof		Foil (Sisalation)	Light -SA <0.475	Top floor units & where exposed balcony is above

Window cover	Internal (curtains)	External (awnings, shutters, etc)
Not specified		None

Fixed shading	Eaves (width - inc. gutters, h't above windows)	Verandahs, Pergolas (type, description)
	Varying eaves widths and offsets, as per plans	Overshadowing from units above

Overshadowing	Overshadowing structures	Overshadowing trees
Adjacent Buildings		No

**Orientation, Exposure, Ventilation and Infiltration**

Orientation of nominal north:	Varying as per plan
Terrain category:	Suburban
Roof ventilation:	Unventilated
Cross ventilation:	Standard
Subfloor:	Above carpark & neighbouring units
Living area open to entry:	No
Doors separate living areas:	No
Stair open to heated areas:	Varying
Seals to windows and doors:	Yes
Exhaust fans without dampers:	No
Ventilated skylights:	No
Open fire, unflued gas heat:	No
Vented downlights:	No
Wall and ceiling vents:	No

ABSA Assessor stamp



# BASIX Certificate

Certificate number: 237202M\_02

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2006 published by the Department of Planning. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

This certificate is a revision of certificate number 237202M lodged with the consent authority or certifier on 12 March 2009 with application 307/2009.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Director-General  
Date of issue: Friday, 11 September 2009



NSW GOVERNMENT  
Department of Planning

## Score

- ✓ Water: 41 (Target 40)
- ✓ Thermal comfort: pass (Target pass)
- ✓ Energy: 20 (Target 20)

## Description of project

Project address	
Project name	Loftus Residential Development - Bui_02
Street address	5 Loftus Street Street Arncliffe 2205
Local Government Area	Rockdale City Council
Plan type and plan number	deposited 706950
Lot no.	101
Section no.	-
Project type	
No. of unit buildings	1
No. of units in unit buildings	92
No. of attached dwelling houses	0
No. of separate dwelling houses	0
Site details	
Site area (m <sup>2</sup> )	16319
Roof area (m <sup>2</sup> )	1590
Non-residential floor area (m <sup>2</sup> )	0
Residential car spaces	89
Non-residential car spaces	13
Common area landscape	
Common area lawn (m <sup>2</sup> )	440
Common area garden (m <sup>2</sup> )	443
Area of indigenous or low water use species (m <sup>2</sup> )	0
Assessor details	
Assessor number	20101
Certificate number	73231102

## Description of project

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

### Unit building - Building A, 92 dwellings, 7 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
A132	2	86.0	0.0	0.0	0
A136	1	65.0	0.0	0.0	0
A140	3	106.0	0.0	0.0	0
A144	2	109.0	0.0	0.0	0
A148	2	109.0	0.0	0.0	0
A234	2	84.0	0.0	0	0
A238	2	90.0	0.0	0.0	0
A332	2	86.0	0.0	0.0	0
A336	2	84.0	0.0	0.0	0
A340	3	106.0	0.0	0.0	0
A344	2	109.0	0.0	0.0	0
A348	2	109.0	0.0	0.0	0
A434	2	84.0	0.0	0	0
A438	2	90.0	0.0	0.0	0
A532	2	86.0	0.0	0.0	0
A536	2	84.0	0.0	0.0	0
A540	3	106.0	0.0	0.0	0
A544	2	109.0	0.0	0.0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
A133	3	107.0	0.0	0	0
A137	1	65.0	0.0	0.0	0
A141	1	68.0	0.0	0.0	0
A145	2	109.0	0.0	0.0	0
A149	2	109.0	0.0	0.0	0
A235	2	79.0	0.0	0.0	0
A239	1	74.0	0.0	0.0	0
A333	3	107.0	0.0	0	0
A337	1	65.0	0.0	0.0	0
A341	1	78.0	0.0	0.0	0
A345	2	109.0	0.0	0.0	0
A349	2	109.0	0.0	0	0
A435	2	79.0	0.0	0.0	0
A439	1	74.0	0.0	0.0	0
A533	3	107.0	0.0	0	0
A537	1	65.0	0.0	0.0	0
A541	1	78.0	0.0	0.0	0
A545	2	109.0	0.0	0.0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
A134	2	84.0	0.0	0	0
A138	2	90.0	0.0	0.0	0
A142	2	79.0	0.0	0.0	0
A146	2	109.0	0.0	0.0	0
A232	2	86.0	0.0	0.0	0
A236	2	84.0	0.0	0.0	0
A240	3	106.0	0.0	0.0	0
A334	2	84.0	0.0	0	0
A338	2	90.0	0.0	0.0	0
A342	2	79.0	0.0	0.0	0
A346	2	109.0	0.0	0.0	0
A432	2	86.0	0.0	0.0	0
A436	2	84.0	0.0	0.0	0
A440	3	106.0	0.0	0.0	0
A534	2	84.0	0.0	0	0
A538	2	90.0	0.0	0.0	0
A542	2	79.0	0.0	0.0	0
A546	2	109.0	0.0	0.0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
A135	1	53.0	0.0	0.0	0
A139	1	74.0	0.0	0.0	0
A143	2	79.0	0.0	0.0	0
A147	2	109.0	0.0	0.0	0
A233	3	107.0	0.0	0	0
A237	1	65.0	0.0	0.0	0
A241	1	78.0	0.0	0.0	0
A335	2	79.0	0.0	0.0	0
A339	1	74.0	0.0	0.0	0
A343	2	79.0	0.0	0.0	0
A347	2	109.0	0.0	0.0	0
A433	3	107.0	0.0	0	0
A437	1	65.0	0.0	0.0	0
A441	1	78.0	0.0	0.0	0
A535	2	79.0	0.0	0.0	0
A539	1	74.0	0.0	0.0	0
A543	2	79.0	0.0	0.0	0
A547	2	109.0	0.0	0.0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
A548	2	109.0	0.0	0.0	0
A634	2	84.0	0.0	0	0
A638	2	90.0	0.0	0.0	0
A732	2	86.0	0.0	0	0
A736	2	84.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
A549	2	109.0	0.0	0.0	0
A635	2	79.0	0.0	0.0	0
A639	1	74.0	0.0	0.0	0
A733	3	107.0	0.0	0	0
A737	2	60.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
A632	2	86.0	0.0	0.0	0
A636	2	84.0	0.0	0.0	0
A640	3	106.0	0.0	0.0	0
A734	2	84.0	0.0	0	0
A738	2	86.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
A633	3	107.0	0.0	0	0
A637	1	65.0	0.0	0.0	0
A641	1	78.0	0.0	0	0
A735	2	79.0	0.0	0	0
A739	2	77.0	3.0	0	0

## Description of project

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

### Common areas of unit building - Building A

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

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

Common area	Floor area (m <sup>2</sup> )	Common area	Floor area (m <sup>2</sup> )	Common area	Floor area (m <sup>2</sup> )
Indoor pool & spa area (25%of total)	93	Gym (25% of total area)	21	Car park area (percentage of total area)	4000
Switch / Plant / Service areas (25% of)	150	Garbage room (25% of total area)	132	Hallway & lobby's	790

# Schedule of BASIX commitments

## 1. Commitments for unit building - Building A

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 2. Commitments for attached dwelling houses

## 3. Commitments for separate dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

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

#### (a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

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

(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;		✓	



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

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
A233, A234, A433, A434, A633, A634, A641, A732, A733, A734, A735, A736, A737, A738, A739	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual on / timer off

	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
A132, A133, A134, A135, A136, A137, A138, A139, A140, A141, A142, A143, A144, A145, A146, A147, A148, A149, A232, A235, A236, A237, A238, A239, A240, A241, A332, A333, A334, A335, A336, A337, A338, A339, A340, A341, A342, A343, A344, A345, A346,	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, not ducted	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

	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
A347, A348, A349, A432, A435, A436, A437, A438, A439, A440, A441, A532, A533, A534, A535, A536, A537, A538, A539, A540, A541, A542, A543, A544, A545, A546, A547, A548, A549, A632, A635, A636, A637, A638, A639, A640							

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
A133, A140, A233, A240, A333, A340, A433, A440, A533, A540, A633, A640, A733	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
A135, A136, A137, A139, A141, A237, A239, A241, A337, A339, A341, A437, A439, A441, A537, A539, A541, A637, A639, A641	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
A132, A134, A138, A142, A143, A144, A145, A146, A147, A148, A149, A232, A234, A235, A236, A238, A332, A334, A335, A336, A338, A342, A343, A344, A345, A346, A347, A348, A349, A432, A434, A435, A436, A438, A532, A534, A535, A536, A538,	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
A542, A543, A544, A545, A546, A547, A548, A549, A632, A634, A635, A636, A638, A732, A734, A735, A736, A737, A738, A739												

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) Commitment (h) below, applies to the rooms or areas of a dwelling which are listed in the "Cross Ventilation" table below as comprising a breeze path for the dwelling.			
(h) The applicant must construct the dwelling so that at least one ventilation opening is provided in each such room or area. (If only one room or area of a dwelling is mentioned for a breeze path, then that room or area must have at least two ventilation openings).		✓	✓
(i) The two ventilation openings referred to in (h), must meet the following specifications: (aa) be located as specified for the breeze path in the table; (bb) not be more than 15 metres apart; (cc) if the dwelling is below the 10th storey of the building, be at least 1 square metre in size, or if the dwelling is on or above the 10th storey, be at least 0.5 square metres in size and be located above door head level in the room; and (dd) have only 1 doorway, or opening less than 2 square metres in size, located in the direct path between them.			

Thermal loads			
Dwelling no.	Heating load (in mJ/m <sup>2</sup> /yr)	Cooling load (in mJ/m <sup>2</sup> /yr)	Corrected Cooling load (in mJ/m <sup>2</sup> /yr)
A135	95	71	71.0

Dwelling no.	Thermal loads		
	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
A136	131	64	64.0
A141	65	56	56.0
A535	132	68	68.0
A544	106	90	54.0
A637	49	44	44.0
A638	108	16	16.0
A639	131	31	31.0
A641	75	62	62.0
A732	97	42	42.0
A733	117	54	54.0
A734	113	59	59.0
A735	99	36	36.0
A736	92	38	38.0
A737	105	71	71.0
A738	106	40	40.0
A739	118	61	61.0
A144, A344	95	94	56.4
A545, A548	110	24	24.0
A546, A547, A549	129	25	25.0
A145, A148, A345, A348	96	25	25.0
A235, A335, A435, A635	83	37	37.0
A241, A341, A441, A541	63	64	64.0
A137, A237, A337, A437, A537	37	46	46.0
A138, A238, A338, A438, A538	92	16	16.0



	Thermal loads		
Dwelling no.	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
A139, A239, A339, A439, A539	115	31	31.0
A236, A336, A436, A536, A636	78	38	38.0
A132, A232, A332, A432, A532, A632	81	44	44.0
A133, A233, A333, A433, A533, A633	102	55	55.0
A134, A234, A334, A434, A534, A634	96	65	65.0
A140, A240, A340, A440, A540, A640	77	22	22.0
A142, A143, A342, A343, A542, A543	81	19	19.0
All other dwellings	115	26	26.0

	Cross ventilation			
Dwelling no.	Breeze path 1	Breeze path 2	Breeze path 3	Breeze path 4
A339	within main living area Ventilation openings: >3 m apart and on adjacent external walls	-	-	-
A144, A344, A544	main living to Bedroom1 Ventilation openings: opposite external walls	main living to Bedroom2 Ventilation openings: opposite external walls	within main living area Ventilation openings: >3 m apart and on adjacent external walls	-
A139, A239, A439, A539, A639	-	-	-	-
All other dwellings	-	-	-	-

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

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

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

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Lift car (No. 2)	-	-	compact fluorescent	connected to lift call button	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 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	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	5000	To collect run-off from at least: - 1590 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 883 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site
Pool (No. 1)	Volume: 60 kLs	Location: Indoor pool & spa area (25%of total)	-

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 1)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Indoor pool & spa area (25% of total)	ventilation (supply + exhaust)	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Gym (25% of total area)	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Car park area (percentage of total area)	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	zoned switching with motion sensor	No
Switch / Plant / Service areas (25% of)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage room (25% of total area)	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Hallway & lobby's	ventilation supply only	time clock or BMS controlled	compact fluorescent	zoned switching	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes
Sauna (No. 1)	Heating source: gas	Efficiency measure: manual on / timer off

## Notes

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

## Legend

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

# 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							
<b>Name:</b>	Tracey Cools		<b>Company:</b> Efficient Living		<b>ABSA #:</b> 20101		
<b>Address:</b>	24B, 176 South Creek Road, Cromer						
<b>Phone:</b>	9971 0003		<b>Fax:</b>	9971 0003		<b>Email:</b> tracey@efficientliving.com.au	
<b>Declaration of interest:</b>	None						
Client							
<b>Name:</b>	Tom Hutchison		<b>Company:</b> Meriton Apartments Pty Ltd				
<b>Address:</b>	Level 11, 528 Kent Street Sydney 2000						
<b>Phone:</b>	9287 2888		<b>Fax:</b>	9287 2777		<b>Email:</b> tomh@meriton.com.au	
Project							
<b>Address:</b>	5 Loftus Street, ARNCLIFFE NSW 2205			<b>LOT / DP:</b> 101 / 706950			
<b>Applicant:</b>	Meriton Apartments Pty Ltd			<b>LGA:</b> Rockdale City Council			
Assessment							
<b>Date:</b>	10/09/09		<b>File ref:</b>	-		<b>Software:</b>	NatHERS
<b>Version:</b>	2.32B						
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:							
<b>Thermal Performance Spec:</b>	Cover sheet						
<b>Drawings:</b>	parking 1, 1A, 2, G/1,2,3,4,5,6,7,8, roof, site, elevations - Issued 09/09/09						
<b>Building Specifications:</b> Only specifications, detailed on Drawings identified above, have been referenced							
<div style="text-align: right;"> </div>							
ABSA Assessor Certificate    Assessor # 20101    Certificate # 87815115    Issued: 11/09/09							
Thermal performance specifications						Page 1 of 2	
Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
B150	87815115	77.5	0	83	18	No	No
B151	32779649	76	0	95	29	No	No
B152	47672449	109	0	95	29	No	No
B153	56764285	109	0	79	19	No	No
B154	56764285	109	0	79	19	No	No
B155	56764285	109	0	79	19	No	No
B156	74447518	111	0	73	23	No	No
B157	86807574	61	0	73	17	No	No
B158	15443696	84	0	123	59	No	No
B159	53866825	57	0	66	31	No	No
B160	57111387	76	0	72	39	No	No
B161	31823245	91	0	89	69	No	No
B162	21162981	91	0	125	56	No	No
B163	95544984	66	0	106	35	No	No
B250	86807574	61	0	73	17	No	No
B251	15443696	84	0	123	59	No	No



ABSA Assessor Certificate		Assessor #	20101	Certificate #	87815115	Issued:	11/09/09
Thermal performance specifications						Page 2 of 2	
Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
B252	53866825	57	0	66	31	No	No
B253	57111387	76	0	72	39	No	No
B254	31823245	91	0	89	69	No	No
B255	21162981	91	0	125	56	No	No
B256	48826617	68	0	106	46	No	No
B350	87815115	77.5	0	83	18	No	No
B351	32779649	76	0	95	29	No	No
B352	47954828	109	0	98	29	No	No
B353	85724963	109	0	81	18	No	No
B354	85724963	109	0	81	18	No	No
B355	85724963	109	0	81	18	No	No
B356	74447518	111	0	73	23	No	No
B357	86807574	61	0	73	17	No	No
B358	15443696	84	0	123	59	No	No
B359	53866825	57	0	66	31	No	No
B360	57111387	76	0	72	39	No	No
B361	31823245	91	0	89	69	No	No
B362	21162981	91	0	125	56	No	No
B363	48826617	68	0	106	46	No	No
B450	24776121	61	0	81	17	No	No
B451	61022472	87	0	110	52	No	No
B452	81833235	51.5	0	78	38	No	No
B453	27057812	76	0	81	39	No	No
B454	86969385	91	0	96	68	No	No
B455	61853784	91	0	133	56	No	No
B456	87419915	68	0	122	45	No	No
B550	62423064	102	0	127	44	No	No
B551	66247555	112	0	85	60	No	No
B552	45361371	97	0	124	56	No	No
B553	41293237	84	0	58	38	No	No
B554	46163385	86	0	81	23	No	No
B555	40281874	96	0	130	45	No	No
B556	11597791	85	0	130	44	No	No
B650	74138170	102	0	125	59	No	No
B651	31513289	112	0	99	59	No	No
B652	61352733	97	0	113	50	No	No
B653	89612257	84	0	68	36	No	No
B654	28790431	86	0	92	22	No	No
B655	67135872	96	0	113	28	No	No
B656	52461545	85	0	127	22	No	No

**Thermal Performance Specifications**

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

Windows	Product ID	Glass	Frame	U value	SHGC	Area M <sup>2</sup>	Detail
Supplier not specified		Single Light grey low-E	Aluminium	4.6	0.360	Varying	To units listed on the upgrade table
Supplier not specified		Single Light grey tint	Aluminium	6.6	0.529	Varying	To the remainder of the complex

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

Window and skylight U and SHGC values, if specified, are according to ANAC 2005. Alternate products or specifications may be used if their U value is lower, and the SHGC value is less than 10% higher or lower, than the U and SHGC values of the product specified above.

External walls	Construction	Insulation	Colour – solar abs.	Detail
Precast concrete		Foil (Sisalation)	Not specified	To units listed on the upgrade table
Precast concrete		None	Not specified	To the remainder of the complex

Internal walls	Construction	Insulation	Detail
Plasterboard on studs		None	With-in each unit
Hebel		None	To inter-tenancy walls

Floors	Construction	Insulation	Covering	Detail
Concrete slab		None	Tiles to wet areas & entry	
			Carpet to Living rooms	& bedrooms

Ceilings	Construction	Insulation	Detail
Plasterboard		R2.0	To top floor units & where exposed balcony is above
Plasterboard		None	Where neighbouring units are above

Roof	Construction	Insulation	Colour – solar abs.	Detail
Concrete slab roof		Foil (Sisalation)	Light -SA <0.475	Top floor units & where exposed balcony is above

Window cover	Internal (curtains)	External (awnings, shutters, etc)
Not specified		None

Fixed shading	Eaves (width - inc. gutters, h't above windows)	Verandahs, Pergolas (type, description)
	Varying eaves widths and offsets, as per plans	Overshadowing from units above

Overshadowing	Overshadowing structures	Overshadowing trees
	Adjacent Buildings	No

**Orientation, Exposure, Ventilation and Infiltration**

Orientation of nominal north:	Varying as per plan
Terrain category:	Suburban
Roof ventilation:	Unventilated
Cross ventilation:	Standard
Subfloor:	Above carpark & neighbouring units
Living area open to entry:	No
Doors separate living areas:	No
Stair open to heated areas:	Varying
Seals to windows and doors:	Yes
Exhaust fans without dampers:	No
Ventilated skylights:	No
Open fire, unflued gas heat:	No
Vented downlights:	No
Wall and ceiling vents:	No

ABSA Assessor stamp



# BASIX Certificate

Certificate number: 235406M\_02

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2006 published by the Department of Planning. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

This certificate is a revision of certificate number 235406M lodged with the consent authority or certifier on 12 March 2009 with application 307/2009.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Director-General  
Date of issue: Friday, 11 September 2009



NSW GOVERNMENT  
Department of Planning

## Score

- ✓ Water: 41 (Target 40)
- ✓ Thermal comfort: pass (Target pass)
- ✓ Energy: 20 (Target 20)

## Description of project

Project address	
Project name	Loftus Residential Development - Bui_02
Street address	5 Loftus Street Street Arncliffe 2205
Local Government Area	Rockdale City Council
Plan type and plan number	deposited 706950
Lot no.	101
Section no.	-
Project type	
No. of unit buildings	1
No. of units in unit buildings	56
No. of attached dwelling houses	0
No. of separate dwelling houses	0
Site details	
Site area (m <sup>2</sup> )	16319
Roof area (m <sup>2</sup> )	890
Non-residential floor area (m <sup>2</sup> )	0
Residential car spaces	89
Non-residential car spaces	13
Common area landscape	
Common area lawn (m <sup>2</sup> )	440
Common area garden (m <sup>2</sup> )	443
Area of indigenous or low water use species (m <sup>2</sup> )	0
Assessor details	
Assessor number	20101
Certificate number	87815115

## Description of project

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

### Unit building - Building B, 56 dwellings, 7 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
B150	2	77.0	0.0	0	0
B154	2	109.0	0.0	0	0
B158	2	84.0	0.0	0	0
B162	2	91.0	0.0	0	0
B252	1	57.0	0.0	0	0
B256	2	68.0	0.0	0	0
B353	2	109.0	0.0	0	0
B357	2	61.0	0.0	0	0
B361	2	91.0	0.0	0	0
B451	2	87.0	0.0	0	0
B455	2	91.0	0.0	0	0
B552	2	97.0	0.0	0	0
B556	2	85.0	0.0	0	0
B653	2	84.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
B151	2	76.0	0.0	0	0
B155	2	109.0	0.0	0	0
B159	1	57.0	0.0	0	0
B163	2	66.0	0.0	0	0
B253	2	76.0	0.0	0	0
B350	2	77.0	0.0	0	0
B354	2	109.0	0.0	0	0
B358	2	84.0	0.0	0	0
B362	2	91.0	0.0	0	0
B452	1	51.0	0.0	0	0
B456	2	68.0	0.0	0	0
B553	2	84.0	0.0	0	0
B650	2	102.0	0.0	0	0
B654	2	86.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
B152	2	109.0	0.0	0	0
B156	2	111.0	0.0	0	0
B160	2	76.0	0.0	0	0
B250	2	61.0	0.0	0	0
B254	2	91.0	0.0	0	0
B351	2	76.0	0.0	0	0
B355	2	109.0	0.0	0	0
B359	1	57.0	0.0	0	0
B363	2	68.0	0.0	0	0
B453	2	76.0	0.0	0	0
B550	2	102.0	0.0	0	0
B554	2	86.0	0.0	0	0
B651	3	112.0	0.0	0	0
B655	2	86.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
B153	2	109.0	0.0	0	0
B157	2	61.0	0.0	0	0
B161	2	91.0	0.0	0	0
B251	2	84.0	0.0	0	0
B255	2	91.0	0.0	0	0
B352	2	109.0	0.0	0	0
B356	2	111.0	0.0	0	0
B360	2	76.0	0.0	0	0
B450	2	61.0	0.0	0	0
B454	2	91.0	0.0	0	0
B551	3	112.0	0.0	0	0
B555	2	96.0	0.0	0	0
B652	2	97.0	0.0	0	0
B656	2	85.0	0.0	0	0

## Description of project

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

### Common areas of unit building - Building B

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

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

Common area	Floor area (m²)
Indoor pool &or spa area (25% of total)	93
Switch / PLant / areas (25% of )	150

Common area	Floor area (m²)
Gym (25% of total area)	21
Garbage room (25% of total area)	94

Common area	Floor area (m²)
Car park area (25% of total area)	3500
Hallway & lobby's	635

# Schedule of BASIX commitments

## 1. Commitments for unit building - Building B

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 2. Commitments for attached dwelling houses

## 3. Commitments for separate dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

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

#### (a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

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

(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 switch on/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
B651	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
B159, B252, B359, B452	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
B150, B151, B152, B153, B154, B155, B156, B157, B158, B160, B161, B162, B163, B250, B251, B253, B254, B255, B256, B350, B351, B352, B353, B354, B355, B356, B357, B358, B360, B361, B362, B363, B450, B451, B453, B454, B455, B456, B550,	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
B551, B552, B553, B554, B555, B556, B650, B652, B653, B654, B655, B656												

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.			

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.			
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.			
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
(g) Commitment (h) below, applies to the rooms or areas of a dwelling which are listed in the "Cross Ventilation" table below as comprising a breeze path for the dwelling.			
(h) The applicant must construct the dwelling so that at least one ventilation opening is provided in each such room or area. (If only one room or area of a dwelling is mentioned for a breeze path, then that room or area must have at least two ventilation openings).		✓	✓
(i) The two ventilation openings referred to in (h), must meet the following specifications: (aa) be located as specified for the breeze path in the table; (bb) not be more than 15 metres apart; (cc) if the dwelling is below the 10th storey of the building, be at least 1 square metre in size, or if the dwelling is on or above the 10th storey, be at least 0.5 square metres in size and be located above door head level in the room; and (dd) have only 1 doorway, or opening less than 2 square metres in size, located in the direct path between them.			

Dwelling no.	Thermal loads		
	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
B163	106	35	35.0
B352	98	29	29.0
B450	81	17	17.0
B451	110	52	52.0
B452	78	38	38.0
B453	81	39	39.0
B454	96	68	68.0

Dwelling no.	Thermal loads		
	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
B455	33	56	56.0
B456	122	45	45.0
B550	127	44	44.0
B551	85	60	60.0
B552	124	56	56.0
B553	58	38	38.0
B554	81	23	23.0
B555	130	45	45.0
B556	130	44	44.0
B650	125	59	59.0
B651	99	59	59.0
B652	113	50	50.0
B653	68	36	36.0
B654	92	22	22.0
B655	113	28	28.0
B656	127	22	22.0
B150, B350	83	18	18.0
B156, B356	73	23	23.0
B256, B363	106	46	46.0
B151, B152, B351	95	29	29.0
B153, B154, B155	79	19	19.0
B157, B250, B357	73	17	17.0
B158, B251, B358	123	59	59.0
B159, B252, B359	66	31	31.0
B160, B253, B360	72	39	39.0
B161, B254, B361	89	69	69.0
B162, B255, B362	125	56	56.0

	Thermal loads		
Dwelling no.	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
All other dwellings	81	18	18.0

	Cross ventilation			
Dwelling no.	Breeze path 1	Breeze path 2	Breeze path 3	Breeze path 4
B550, B650	-	-	-	-
All other dwellings	-	-	-	-

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

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

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

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

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

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 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	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	5000	To collect run-off from at least: - 890 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 880 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site
Fire sprinkler system (No. 1)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

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

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Indoor pool &or spa area (25% of total)	ventilation (supply + exhaust)	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Gym (25% of total area)	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Car park area (25% of total area)	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	zoned switching with motion sensor	No
Switch / PLant / areas (25% of )	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage room (25% of total area)	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Hallway & lobby's	ventilation supply only	time clock or BMS controlled	compact fluorescent	zoned switching	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)

## Notes

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

## Legend

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

# 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.



<b>Assessor</b>							
<b>Name:</b>	Tracey Cools		<b>Company:</b> Efficient Living		<b>ABSA #:</b> 20101		
<b>Address:</b>	24B, 176 South Creek Road, Cromer						
<b>Phone:</b>	9971 0003		<b>Fax:</b>	9971 0003		<b>Email:</b> tracey@efficientliving.com.au	
<b>Declaration of interest:</b>	None						
<b>Client</b>							
<b>Name:</b>	Tom Hutchison		<b>Company:</b> Meriton Apartments Pty Ltd				
<b>Address:</b>	Level 11, 528 Kent Street Sydney 2000						
<b>Phone:</b>	9287 2888		<b>Fax:</b>	9287 2777		<b>Email:</b> tomh@meriton.com.au	
<b>Project</b>							
<b>Address:</b>	5 Loftus Street, ARNCLIFFE NSW 2205			<b>LOT / DP:</b> 101 / 706950			
<b>Applicant:</b>	Meriton Apartments Pty Ltd			<b>LGA:</b> Rockdale City Council			
<b>Assessment</b>							
<b>Date:</b>	10/09/09		<b>File ref:</b>	-		<b>Software:</b>	NatHERS
<b>Version:</b>	2.32B						
<b>Documentation</b>							
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:							
<b>Thermal Performance Spec:</b>	Cover sheet						
<b>Drawings:</b>	parking 1, 1A, 2, G/1,2,3,4,5,6,7,8, roof, site, elevations - Issued 09/09/09						
<b>Building Specifications:</b> Only specifications, detailed on Drawings identified above, have been referenced							

*Affix assessor stamp*

ABSA Assessor Certificate		Assessor # 20101		Certificate # 93201820		Issued: 11/09/09	
Thermal performance specifications						Page 1 of 3	
Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
CG01	93201820	53	0	113	28	No	No
CG02	85134744	102	0	81	22	No	No
CG03	85134744	102	0	81	22	No	No
CG04	45141552	102	0	84	14	No	No
CG05	45141552	102	0	84	14	No	No
CG06	45141552	102	0	84	14	No	No
CG07	48623418	108	0	116	53	No	No
CG08	35437262	81.5	0	90	11	No	No
CG09	78818671	81.5	0	90	11	No	No
CG10	32066308	80	0	77	43	No	No
CG11	34540856	81.5	0	97	21	No	No
CG12	57188145	79	0	72	76	Yes	Yes
CG13	23383531	81	0	74	28	No	No
CG14	89543696	54	0	51	46	No	No
CG15	26614137	76	0	87	24	No	No
CG16	98648884	80	0	113	43	No	No

**Thermal performance specifications**
**Page 2 of 3**

Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
C101	45626232	80	0	118	23	No	No
C110	78672819	92	0	84	60	No	No
C111	34540856	81.5	0	97	21	No	No
C112	68782708	79	0	82	68	No	No
C113	23383531	81	0	74	28	No	No
C114	23383531	81	0	74	28	No	No
C115	26614137	76	0	87	24	No	No
C116	98648884	80	0	113	43	No	No
C201	45626232	80	0	118	23	No	No
C202	56548555	102	0	82	21	No	No
C203	56548555	102	0	82	21	No	No
C204	68850857	102	0	86	14	No	No
C205	68850857	102	0	86	14	No	No
C206	68850857	102	0	86	14	No	No
C207	84637391	108	0	118	52	No	No
C208	35437262	81.5	0	90	11	No	No
C209	78818671	81.5	0	90	11	No	No
C210	78672819	92	0	84	60	No	No
C211	34540856	81.5	0	97	21	No	No
C212	68782708	79	0	82	68	No	No
C213	23383531	81	0	74	28	No	No
C214	23383531	81	0	74	28	No	No
C215	26614137	76	0	87	24	No	No
C216	98648884	80	0	113	43	No	No
C301	45626232	80	0	118	23	No	No
C310	78672819	92	0	84	60	No	No
C311	34540856	81.5	0	97	21	No	No
C312	68782708	79	0	82	68	No	No
C313	22664317	81	0	85	27	No	No
C314	22664317	81	0	85	27	No	No
C315	41494082	76	0	95	23	No	No
C316	28488449	80	0	132	48	No	No
C401	92118936	98.5	0	106	57	Yes	Yes
C402	61648861	81	0	124	33	No	No
C403	62766725	81	0	119	34	No	No
C404	35437262	81.5	0	90	11	No	No
C405	78818671	81.5	0	90	11	No	No
C410	46266520	81.5	0	108	19	No	No
C411	34540856	81.5	0	97	21	No	No
C412	66123313	85	0	134	62	No	No
C413	65202241	113	0	124	59	No	No
C501	54918541	98.5	0	111	59	Yes	Yes
C502	21276175	81	0	135	49	No	No
C503	24715326	81	0	134	46	No	No
C504	17091120	81.5	0	107	11	No	No
C505	82719112	81.5	0	107	11	No	No

**Thermal performance specifications**
**Page 3 of 3**

Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
C510	23571342	81.5	0	126	19	No	No
C511	21646785	81.5	0	113	21	No	No
C512	52146367	85	0	131	60	No	No

Assessor # 20101

Certificate # 93201820

Issued: 11/09/09

**Thermal Performance Specifications**

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

Windows	Product ID	Glass	Frame	U value	SHGC	Area M <sup>2</sup>	Detail
Supplier not specified		Single Light grey low-E	Aluminium	4.6	0.360	Varying	To units listed on the upgrade table
Supplier not specified		Single Light grey tint	Aluminium	6.6	0.529	Varying	To the remainder of the complex

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

Window and skylight U and SHGC values, if specified, are according to ANAC 2005. Alternate products or specifications may be used if their U value is lower, and the SHGC value is less than 10% higher or lower, than the U and SHGC values of the product specified above.

External walls	Construction	Insulation	Colour – solar abs.	Detail
Precast concrete		Foil (Sisalation)	Not specified	To units listed on the upgrade table
Precast concrete		None	Not specified	To the remainder of the complex

Internal walls	Construction	Insulation	Detail
Plasterboard on studs		None	With-in each unit
Hebel		None	To inter-tenancy walls

Floors	Construction	Insulation	Covering	Detail
Concrete slab		None	Tiles to wet areas & entry	
			Carpet to Living rooms	& bedrooms

Ceilings	Construction	Insulation	Detail
Plasterboard		R2.0	To top floor units & where exposed balcony is above
Plasterboard		None	Where neighbouring units are above

Roof	Construction	Insulation	Colour – solar abs.	Detail
Concrete slab roof		Foil (Sisalation)	Light -SA <0.475	Top floor units & where exposed balcony is above

Window cover	Internal (curtains)	External (awnings, shutters, etc)
Not specified		None

Fixed shading	Eaves (width - inc. gutters, h't above windows)	Verandahs, Pergolas (type, description)
	Varying eaves widths and offsets, as per plans	Overshadowing from units above

Overshadowing	Overshadowing structures	Overshadowing trees
	Adjacent Buildings	No

**Orientation, Exposure, Ventilation and Infiltration**

Orientation of nominal north:	Varying as per plan
Terrain category:	Suburban
Roof ventilation:	Unventilated
Cross ventilation:	Standard
Subfloor:	Above carpark & neighbouring units
Living area open to entry:	No
Doors separate living areas:	No
Stair open to heated areas:	Varying
Seals to windows and doors:	Yes
Exhaust fans without dampers:	No
Ventilated skylights:	No
Open fire, unflued gas heat:	No
Vented downlights:	No
Wall and ceiling vents:	No

ABSA Assessor stamp



# BASIX Certificate

Certificate number: 237205M\_02

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2006 published by the Department of Planning. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

This certificate is a revision of certificate number 237205M lodged with the consent authority or certifier on 12 March 2009 with application 307/2009.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Director-General  
Date of issue: Friday, 11 September 2009



NSW GOVERNMENT  
Department of Planning

## Score

- ✓ Water: 41 (Target 40)
- ✓ Thermal comfort: pass (Target pass)
- ✓ Energy: 20 (Target 20)

## Description of project

Project address	
Project name	Loftus Residential Development - Bui_02
Street address	5 Loftus Street Street ARNCLIFFE 2205
Local Government Area	Rockdale City Council
Plan type and plan number	deposited 706950
Lot no.	101
Section no.	-
Project type	
No. of unit buildings	1
No. of units in unit buildings	65
No. of attached dwelling houses	0
No. of separate dwelling houses	0
Site details	
Site area (m <sup>2</sup> )	16319
Roof area (m <sup>2</sup> )	1035
Non-residential floor area (m <sup>2</sup> )	0
Residential car spaces	90
Non-residential car spaces	13
Common area landscape	
Common area lawn (m <sup>2</sup> )	440
Common area garden (m <sup>2</sup> )	443
Area of indigenous or low water use species (m <sup>2</sup> )	0
Assessor details	
Assessor number	20101
Certificate number	93201820



## Description of project

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

### Unit building - Building C, 65 dwellings, 7 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
C101	2	80.0	0.0	0.0	0
C113	2	81.0	0.0	0.0	0
C201	2	80.0	0.0	0.0	0
C205	2	102.0	0.0	0.0	0
C209	2	81.0	0.0	0.0	0
C213	2	81.0	0.0	0.0	0
C301	2	80.0	0.0	0.0	0
C313	2	81.0	0.0	0.0	0
C401	2	98.0	0.0	0.0	0
C405	2	81.0	0.0	0.0	0
C413	3	113.0	0.0	0.0	0
C504	2	81.0	0.0	0.0	0
C512	2	85.0	0.0	0.0	0
CG04	2	102.0	0.0	0.0	0
CG08	2	81.0	0.0	0.0	0
CG12	2	79.0	0.0	0.0	0
CG16	2	80.0	0.0	0.0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
C110	2	92.0	0.0	0.0	0
C114	2	81.0	0.0	0.0	0
C202	2	102.0	0.0	0.0	0
C206	2	102.0	0.0	0.0	0
C210	2	92.0	0.0	0.0	0
C214	2	81.0	0.0	0.0	0
C310	2	92.0	0.0	0.0	0
C314	2	81.0	0.0	0.0	0
C402	2	81.0	0.0	0.0	0
C410	2	81.0	0.0	0.0	0
C501	2	98.0	0.0	0.0	0
C505	2	81.0	0.0	0.0	0
CG01	1	53.0	0.0	0.0	0
CG05	2	102.0	0.0	0.00	0
CG09	2	81.0	0.0	0.0	0
CG13	2	81.0	0.0	0.0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
C111	2	81.0	0.0	0.0	0
C115	2	76.0	0.0	0.0	0
C203	2	102.0	0.0	0.0	0
C207	2	108.0	0.0	0.0	0
C211	2	81.0	0.0	0.0	0
C215	2	76.0	0.0	0.0	0
C311	2	81.0	0.0	0.0	0
C315	2	76.0	0.0	0.0	0
C403	2	81.0	0.0	0.0	0
C411	2	81.0	0.0	0.0	0
C502	2	81.0	0.0	0.0	0
C510	2	81.0	0.0	0.0	0
CG02	2	102.0	0.0	0.0	0
CG06	2	102.0	0.0	0.0	0
CG10	1	80.0	0.0	0.0	0
CG14	1	54.0	0.0	0.0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
C112	2	79.0	0.0	0.0	0
C116	2	80.0	0.0	0.0	0
C204	2	102.0	0.0	0.0	0
C208	2	81.0	0.0	0.0	0
C212	2	79.0	0.0	0.0	0
C216	2	80.0	0.0	0.0	0
C312	2	79.0	0.0	0.0	0
C316	2	80.0	0.0	0.0	0
C404	2	81.0	0.0	0.0	0
C412	2	85.0	0.0	0.0	0
C503	2	81.0	0.0	0.0	0
C511	2	81.0	0.0	0.0	0
CG03	2	102.0	0.0	0.0	0
CG07	2	108.0	0.0	0.0	0
CG11	2	81.0	0.0	0.0	0
CG15	2	76.0	0.0	0.0	0

## Description of project

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

### Common areas of unit building - Building C

Common area	Floor area (m <sup>2</sup> )
Lift car (No. 1)	-
Hallway & lobby's	500

Common area	Floor area (m <sup>2</sup> )
Lift car (No. 2)	-

Common area	Floor area (m <sup>2</sup> )
Office / Reception	10

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

Common area	Floor area (m <sup>2</sup> )
Indoor pool & spa area (25% of total)	93
Switch / Plant / Service areas (25% of)	150

Common area	Floor area (m <sup>2</sup> )
Gym (25% of total area)	21
Garbage room (25% of total area)	162

Common area	Floor area (m <sup>2</sup> )
Car park (percentage of total area)	4550

# Schedule of BASIX commitments

## 1. Commitments for unit building - Building C

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 2. Commitments for attached dwelling houses

## 3. Commitments for separate dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

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

#### (a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star	4 star	4 star	4 star	no	2 star	3 star	-	-	-	-	-	-	-

Dwelling no.	Alternative water source							
	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
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 switch on/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
C413	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
CG01, CG10, CG14	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
C101, C110, C111, C112, C113, C114, C115, C116, C201, C202, C203, C204, C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C215, C216, C301, C310, C311, C312, C313, C314, C315, C316, C401, C402, C403, C404, C405, C410, C411,	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
C412, C501, C502, C503, C504, C505, C510, C511, C512, CG02, CG03, CG04, CG05, CG06, CG07, CG08, CG09, CG11, CG12, CG13, CG15, CG16												

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) Commitment (h) below, applies to the rooms or areas of a dwelling which are listed in the "Cross Ventilation" table below as comprising a breeze path for the dwelling.			
(h) The applicant must construct the dwelling so that at least one ventilation opening is provided in each such room or area. (If only one room or area of a dwelling is mentioned for a breeze path, then that room or area must have at least two ventilation openings).		✓	✓
(i) The two ventilation openings referred to in (h), must meet the following specifications: (aa) be located as specified for the breeze path in the table; (bb) not be more than 15 metres apart; (cc) if the dwelling is below the 10th storey of the building, be at least 1 square metre in size, or if the dwelling is on or above the 10th storey, be at least 0.5 square metres in size and be located above door head level in the room; and (dd) have only 1 doorway, or opening less than 2 square metres in size, located in the direct path between them.			

Thermal loads			
Dwelling no.	Heating load (in mJ/m <sup>2</sup> /yr)	Cooling load (in mJ/m <sup>2</sup> /yr)	Corrected Cooling load (in mJ/m <sup>2</sup> /yr)
C207	118	52	52.0

Dwelling no.	Thermal loads		
	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
C315	95	23	23.0
C316	132	48	48.0
C401	106	57	39.9
C402	124	33	33.0
C403	119	34	34.0
C410	108	19	19.0
C413	24	59	59.0
C501	131	95	66.5
C502	135	49	49.0
C503	134	46	46.0
C510	126	19	19.0
C511	113	21	21.0
CG01	113	28	28.0
CG07	116	53	53.0
CG10	77	43	43.0
CG12	72	76	53.2
CG14	51	46	46.0
C202, C203	82	21	21.0
C313, C314	85	27	27.0
C412, C512	110	69	69.0
C504, C505	107	11	11.0
CG02, CG03	81	22	22.0
C101, C201, C301	118	23	23.0
C110, C210, C310	84	60	60.0
C112, C212, C312	82	68	47.6
C115, C215, CG15	87	24	24.0
C116, C216, CG16	113	43	43.0

	Thermal loads		
Dwelling no.	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
C204, C205, C206	86	14	14.0
CG04, CG05, CG06	84	14	14.0
C111, C211, C311, C411, CG11	97	21	21.0
C113, C114, C213, C214, CG13	74	28	28.0
All other dwellings	90	11	11.0

	Cross ventilation			
Dwelling no.	Breeze path 1	Breeze path 2	Breeze path 3	Breeze path 4
C401	main living to Bedroom1 Ventilation openings: >3 m apart and on adjacent external walls	main living to Bedroom2 Ventilation openings: >3 m apart and on adjacent external walls	-	-
C112, C501, CG12	main living to Bedroom1 Ventilation openings: >3 m apart and on adjacent external walls	main living to Bedroom2 Ventilation openings: >3 m apart and on adjacent external walls	within main living area Ventilation openings: >3 m apart and on adjacent external walls	-
C116, C212, C216, C312, C316, CG16	-	-	-	-
All other dwellings	-	-	-	-

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

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

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

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Lift car (No. 2)	-	-	compact fluorescent	connected to lift call button	No
Office / Reception	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Hallway & lobby's	ventilation supply only	time clock or BMS controlled	compact fluorescent	zoned switching	No

Central energy systems	Type	Specification
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	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	5000	To collect run-off from at least: - 1035 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 883 square metres of common landscaped area on the site - car washing in 2 car washing bays on the site
Pool (No. 1)	Volume: 60 kLs	Location: Indoor pool & spa area (25% of total)	-

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 1)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Indoor pool & spa area (25% of total)	ventilation (supply + exhaust)	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Gym (25% of total area)	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Car park (percentage of total area)	ventilation exhaust only	carbon monoxide monitor + 2-speed fan	fluorescent	zoned switching with motion sensor	No
Switch / Plant / Service areas (25% of)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage room (25% of total area)	ventilation exhaust only	-	fluorescent	manual on / manual off	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)
Pool (No. 1)	Heating source: gas	Pump controlled by timer: yes



## Notes

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

## Legend

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

# 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.



<b>Assessor</b>							
<b>Name:</b>	Tracey Cools		<b>Company:</b> Efficient Living		<b>ABSA #:</b> 20101		
<b>Address:</b>	24B, 176 South Creek Road, Cromer						
<b>Phone:</b>	9971 0003		<b>Fax:</b>	9971 0003		<b>Email:</b> tracey@efficientliving.com.au	
<b>Declaration of interest:</b>	None						
<b>Client</b>							
<b>Name:</b>	Tom Hutchison		<b>Company:</b> Meriton Apartments Pty Ltd				
<b>Address:</b>	Level 11, 528 Kent Street Sydney 2000						
<b>Phone:</b>	9287 2517		<b>Fax:</b>	9287 2777		<b>Email:</b> tomh@meriton.com.au	
<b>Project</b>							
<b>Address:</b>	5 Loftus Street, ARNCLIFFE NSW 2205		<b>LOT / DP:</b> 101 / 706950				
<b>Applicant:</b>	Meriton Apartments Pty Ltd		<b>LGA:</b> Rockdale City Council				
<b>Assessment</b>							
<b>Date:</b>	09/09/09		<b>File ref:</b>	-		<b>Software:</b>	NatHERS
<b>Version:</b>	2.32B						
<b>Documentation</b>							
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:							
<b>Thermal Performance Spec:</b>	Cover sheet						
<b>Drawings:</b>	parking 1, 1A, 2, G/1,2,3,4,5,6,7,8, roof, site, elevations - Issued 09/09/09						
<b>Building Specifications:</b> Only specifications, detailed on Drawings identified above, have been referenced							
<div style="text-align: right;">Affix assessor stamp</div>							
<b>ABSA Assessor Certificate   Assessor # 20101   Certificate # 51643478   Issued: 11/09/09</b>							
<b>Thermal performance specifications</b>						<b>Page 1 of 3</b>	
Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
DG17	51643478	80.0	0.0	80.0	53.0	No	No
DG18	68724714	93.0	0.0	95.0	34.0	Yes	Yes
DG19	55074365	81.0	0.0	78.0	27.0	No	No
DG20	73951109	121.0	0.0	79.0	57.0	No	No
DG21	52206783	87.0	0.0	125.0	56.0	No	No
DG22	46134371	47.0	0.0	69.0	58.0	No	No
DG24	77116783	55.0	0.0	78.0	29.0	No	No
DG25	55074365	81.0	0.0	78.0	27.0	No	No
DG26	68724714	93.0	0.0	95.0	34.0	Yes	Yes

Thermal performance specifications						Page 2 of 3	
Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
DG27	74033978	81.0	0.0	100.0	42.0	No	No
D117	51643478	80.0	0.0	80.0	53.0	No	No
D118	68724714	93.0	0.0	95.0	34.0	Yes	Yes
D119	55074365	81.0	0.0	78.0	27.0	No	No
D120	16108761	54.0	0.0	82.0	39.0	No	No
D121	73951109	121.0	0.0	79.0	57.0	No	No
D122	52206783	87.0	0.0	125.0	56.0	No	No
D123	60553829	56.0	0.0	86.0	57.0	No	No
D124	90276772	45.0	0.0	99.0	41.0	No	No
D125	66763267	94.0	0.0	97.0	59.0	No	No
D126	47150773	91.0	0.0	66.0	46.0	No	No
D127	81785267	79.0	0.0	85.0	44.0	No	No
D128	15001929	76.0	5.0	76.0	37.0	No	No
D129	55074365	81.0	0.0	78.0	27.0	No	No
D130	68724714	93.0	0.0	95.0	34.0	Yes	Yes
D131	74033978	81.0	0.0	100.0	42.0	No	No
D217	51643478	80.0	0.0	80.0	53.0	No	No
D218	68724714	93.0	0.0	95.0	34.0	Yes	Yes
D219	55074365	81.0	0.0	78.0	27.0	No	No
D220	55074365	81.0	0.0	78.0	27.0	No	No
D221	73951109	121.0	0.0	79.0	57.0	No	No
D222	52206783	87.0	0.0	125.0	56.0	No	No
D223	60553829	56.0	0.0	86.0	57.0	No	No
D224	90276772	45.0	0.0	99.0	41.0	No	No
D225	66763267	94.0	0.0	97.0	59.0	No	No
D226	47150773	91.0	0.0	66.0	46.0	No	No
D227	81785267	79.0	0.0	85.0	44.0	No	No
D228	15001929	76.0	5.0	76.0	37.0	No	No
D229	55074365	81.0	0.0	78.0	27.0	No	No
D230	68724714	93.0	0.0	95.0	34.0	Yes	Yes
D231	74033978	81.0	0.0	100.0	42.0	No	No
D317	51643478	80.0	0.0	80.0	53.0	No	No
D318	68724714	93.0	0.0	95.0	34.0	Yes	Yes
D319	55074365	81.0	0.0	78.0	27.0	No	No
D320	55074365	81.0	0.0	78.0	27.0	No	No
D321	73951109	121.0	0.0	79.0	57.0	No	No
D322	52206783	87.0	0.0	125.0	56.0	No	No
D323	60553829	56.0	0.0	86.0	57.0	No	No
D324	90276772	45.0	0.0	99.0	41.0	No	No
D325	66763267	94.0	0.0	97.0	59.0	No	No

**Thermal performance specifications**
**Page 3 of 3**

Unit number(s)	Certificate number	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Concessions	Qualify for ventilation bonus
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
D326	47150773	91.0	0.0	66.0	46.0	No	No
D327	81785267	79.0	0.0	85.0	44.0	No	No
D328	15001929	76.0	5.0	76.0	37.0	No	No
D329	55074365	81.0	0.0	78.0	27.0	No	No
D330	68724714	93.0	0.0	95.0	34.0	Yes	Yes
D331	74033978	81.0	0.0	100.0	42.0	No	No
D417	51643478	80.0	0.0	80.0	53.0	No	No
D418	68724714	93.0	0.0	95.0	34.0	Yes	Yes
D419	55074365	81.0	0.0	78.0	27.0	No	No
D420	55074365	81.0	0.0	78.0	27.0	No	No
D421	73951109	121.0	0.0	79.0	57.0	No	No
D422	52206783	87.0	0.0	125.0	56.0	No	No
D423	60553829	56.0	0.0	86.0	57.0	No	No
D424	77728245	45.0	0.0	115.0	41.0	No	No
D425	56447646	94.0	0.0	112.0	61.0	No	No
D426	20822616	91.0	0.0	79.0	47.0	No	No
D427	21358101	79.0	0.0	98.0	43.0	No	No
D428	15001929	76.0	5.0	76.0	37.0	No	No
D429	55074365	81.0	0.0	78.0	27.0	No	No
D430	68724714	93.0	0.0	95.0	34.0	Yes	Yes
D431	74033978	81.0	0.0	100.0	42.0	No	No
D517	51643478	80.0	0.0	80.0	53.0	No	No
D518	40676823	93	0	111.0	33.0	Yes	Yes
D519	55074365	81.0	0.0	78.0	27.0	No	No
D520	55074365	81.0	0.0	78.0	27.0	No	No
D521	73951109	121.0	0.0	79.0	57.0	No	No
D522	52206783	87.0	0.0	125.0	56.0	No	No
D523	60553829	56.0	0.0	86.0	57.0	No	No
D524	15001929	76.0	0.0	76.0	37.0	No	No
D525	55074365	81.0	0.0	78.0	27.0	No	No
D526	40676823	93	0	111.0	33.0	Yes	Yes
D527	74033978	81.0	0.0	100.0	42.0	No	No
D617	61554272	80.0	0.0	98.0	69.0	No	No
D618	83845548	81.0	0.0	93.0	42.0	No	No
D619	22476330	81.0	0.0	94.0	27.0	No	No
D620	85668461	121.0	0.0	91.0	56.0	No	No
D621	68745869	87.0	0.0	98.0	54.0	No	No
D622	44587578	56.0	0.0	100.0	57.0	No	No
D624	92729858	76.0	0.0	90.0	35.0	No	No
D625	68654642	81.0	0.0	125.0	34.0	No	No
D626	69616442	80.0	0.0	125.0	60	No	No

Assessor # 20101

Certificate # 51643478

Issued: 11/09/09

**Thermal Performance Specifications**

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

Windows	Product ID	Glass	Frame	U value	SHGC	Area M <sup>2</sup>	Detail
Supplier not specified		Single Light grey low-E	Aluminium	4.6	0.360	Varying	To units listed on the upgrade table
Supplier not specified		Single Light grey tint	Aluminium	6.6	0.529	Varying	To the remainder of the complex

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

Window and skylight U and SHGC values, if specified, are according to ANAC 2005. Alternate products or specifications may be used if their U value is lower, and the SHGC value is less than 10% higher or lower, than the U and SHGC values of the product specified above.

External walls	Construction	Insulation	Colour – solar abs.	Detail
Precast concrete		Foil (Sisalation)	Not specified	To units listed on the upgrade table
Precast concrete		None	Not specified	To the remainder of the complex
Internal walls	Construction	Insulation	Detail	
Plasterboard on studs		None	With-in each unit	
Hebel		None	To inter-tenancy walls	

Floors	Construction	Insulation	Covering	Detail
Concrete slab		None	Tiles to wet areas & entry	
			Carpet to Living rooms	& bedrooms

Ceilings	Construction	Insulation	Detail
Plasterboard		R2.0	To top floor units & where exposed balcony is above
Plasterboard		None	Where neighbouring units are above

Roof	Construction	Insulation	Colour – solar abs.	Detail
Concrete slab roof		Foil (Sisalation)	Light -SA <0.475	Top floor units & where exposed balcony is above

Window cover	Internal (curtains)	External (awnings, shutters, etc)
Not specified		None

Fixed shading	Eaves (width - inc. gutters, h't above windows)	Verandahs, Pergolas (type, description)
	Varying eaves widths and offsets, as per plans	Overshadowing from units above

Overshadowing	Overshadowing structures	Overshadowing trees
Adjacent Buildings		No

**Orientation, Exposure, Ventilation and Infiltration**

Orientation of nominal north:	Varying as per plan
Terrain category:	Suburban
Roof ventilation:	Unventilated
Cross ventilation:	Standard
Subfloor:	Above carpark & neighbouring units
Living area open to entry:	No
Doors separate living areas:	No
Stair open to heated areas:	Varying
Seals to windows and doors:	Yes
Exhaust fans without dampers:	No
Ventilated skylights:	No
Open fire, unflued gas heat:	No
Vented downlights:	No
Wall and ceiling vents:	No

ABSA Assessor stamp



# BASIX Certificate

Certificate number: 235350M\_02

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 29/06/2006 published by the Department of Planning. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

This certificate is a revision of certificate number 235350M lodged with the consent authority or certifier on 12 March 2009 with application 307/2009.

It is the responsibility of the applicant to verify with the consent authority that the original, or any revised certificate, complies with the requirements of Schedule 1 Clause 2A, 4A or 6A of the Environmental Planning and Assessment Regulation 2000

Director-General  
Date of issue: Friday, 11 September 2009



NSW GOVERNMENT  
Department of Planning

## Score

- ✓ Water: 41 (Target 40)
- ✓ Thermal comfort: pass (Target pass)
- ✓ Energy: 20 (Target 20)

## Description of project

Project address	
Project name	Loftus Residential Development - Bui_02
Street address	5 Loftus Street Street Arncliffe 2205
Local Government Area	Rockdale City Council
Plan type and plan number	deposited 706950
Lot no.	101
Section no.	-
Project type	
No. of unit buildings	1
No. of units in unit buildings	90
No. of attached dwelling houses	0
No. of separate dwelling houses	0
Site details	
Site area (m <sup>2</sup> )	16319
Roof area (m <sup>2</sup> )	1980
Non-residential floor area (m <sup>2</sup> )	0
Residential car spaces	89
Non-residential car spaces	13
Common area landscape	
Common area lawn (m <sup>2</sup> )	440
Common area garden (m <sup>2</sup> )	443
Area of indigenous or low water use species (m <sup>2</sup> )	0
Assessor details	
Assessor number	20101
Certificate number	51643478

## Description of project

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

### Unit building - Building D, 90 dwellings, 7 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
D117	2	80.0	0.0	0.0	0.0
D121	3	121.0	0.0	0	0
D125	2	94.0	0.0	0.0	0.0
D129	2	81.0	0.0	0	0
D218	2	93.0	0.0	0.0	0.0
D222	2	87.0	0.0	0	0
D226	2	91.0	0.0	0.0	0.0
D230	2	93.0	0.0	0.0	0.0
D319	2	81.0	0.0	0	0
D323	1	56.0	0.0	0	0
D327	2	79.0	0.0	0.0	0.0
D331	2	81.0	0.0	0.0	0.0
D420	2	81.0	0.0	0.0	0.0
D424	1	45.0	0.0	0.0	0.0
D428	2	76.0	0.0	0.0	0.0
D517	2	80.0	0.0	0.0	0.0
D521	3	121.0	0.0	0	0
D525	2	81.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
D118	2	93.0	0.0	0.0	0.0
D122	2	87.0	0.0	0	0
D126	2	91.0	0.0	0.0	0.0
D130	2	93.0	0.0	0.0	0.0
D219	2	81.0	0.0	0	0
D223	1	56.0	0.0	0	0
D227	2	79.0	0.0	0.0	0.0
D231	2	81.0	0.0	0.0	0.0
D320	2	81.0	0.0	0.0	0.0
D324	1	45.0	0.0	0.0	0.0
D328	2	76.0	0.0	0.0	0.0
D417	2	80.0	0.0	0.0	0.0
D421	3	121.0	0.0	0	0
D425	2	94.0	0.0	0.0	0.0
D429	2	81.0	0.0	0	0
D518	2	93.0	0.0	0.0	0.0
D522	2	87.0	0.0	0	0
D526	2	93.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
D119	2	81.0	0.0	0	0
D123	1	56.0	0.0	0	0
D127	2	79.0	0.0	0.0	0.0
D131	2	81.0	0.0	0.0	0.0
D220	2	81.0	0.0	0.0	0.0
D224	1	45.0	0.0	0.0	0.0
D228	2	76.0	0.0	0.0	0.0
D317	2	80.0	0.0	0.0	0.0
D321	3	121.0	0.0	0	0
D325	2	94.0	0.0	0.0	0.0
D329	2	81.0	0.0	0	0
D418	2	93.0	0.0	0.0	0.0
D422	2	87.0	0.0	0	0
D426	2	91.0	0.0	0.0	0.0
D430	2	93.0	0.0	0.0	0.0
D519	2	81.0	0.0	0	0
D523	1	56.0	0.0	0	0
D527	2	81.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
D120	1	54.0	0.0	0.0	0.0
D124	1	45.0	0.0	0.0	0.0
D128	2	76.0	0.0	0.0	0.0
D217	2	80.0	0.0	0.0	0.0
D221	3	121.0	0.0	0	0
D225	2	94.0	0.0	0.0	0.0
D229	2	81.0	0.0	0	0
D318	2	93.0	0.0	0.0	0.0
D322	2	87.0	0.0	0	0
D326	2	91.0	0.0	0.0	0.0
D330	2	93.0	0.0	0.0	0.0
D419	2	81.0	0.0	0	0
D423	1	56.0	0.0	0	0
D427	2	79.0	0.0	0.0	0.0
D431	2	81.0	0.0	0.0	0.0
D520	2	81.0	0.0	0.0	0.0
D524	2	76.0	0.0	0	0
D617	2	80.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
D618	2	81.0	0.0	0	0
D622	1	56.0	0.0	0	0
DG17	2	80.0	0.0	0.0	0.0
DG21	2	87.0	0.0	0	0
DG26	2	93.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
D619	2	81.0	0.0	0	0
D624	2	76.0	0.0	0.0	0.0
DG18	2	93.0	0.0	0.0	0.0
DG22	1	47.0	0.0	0	0
DG27	2	81.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
D620	3	121.0	0.0	0	0
D625	2	81.0	0.0	0	0
DG19	2	81.0	0.0	0	0
DG24	1	55.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m <sup>2</sup> )	Unconditioned floor area (m <sup>2</sup> )	Area of garden & lawn (m <sup>2</sup> )	Indigenous species (min area m <sup>2</sup> )
D621	2	87.0	0.0	0	0
D626	2	80.0	0.0	0	0
DG20	3	121.0	0.0	0	0
DG25	2	81.0	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 D

Common area	Floor area (m <sup>2</sup> )
Lift car (No. 1)	-
Hallway & lobby's	990

Common area	Floor area (m <sup>2</sup> )
Lift car (No. 2)	-

Common area	Floor area (m <sup>2</sup> )
Office / Reception	24

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

Common area	Floor area (m <sup>2</sup> )
Indoor pool & spa area (25% of total)	93
Switch / Plant / Service areas (25% of)	150

Common area	Floor area (m <sup>2</sup> )
Gym (25% of total area)	21
Garbage rooms (25% of total area)	200

Common area	Floor area (m <sup>2</sup> )
Car park (25% of total area)	4900

# Schedule of BASIX commitments

## 1. Commitments for unit building - Building D

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 2. Commitments for attached dwelling houses

## 3. Commitments for separate dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

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

#### (a) Dwellings

(i) Water	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must comply with the commitments listed below in carrying out the development of a dwelling listed in a table below.			
(b) The applicant must plant indigenous or low water use species of vegetation throughout the area of land specified for the dwelling in the "Indigenous species" column of the table below, as private landscaping for that dwelling. (This area of indigenous vegetation is to be contained within the "Area of garden and lawn" for the dwelling specified in the "Description of Project" table).	✓	✓	
(c) If a rating is specified in the table below for a fixture or appliance to be installed in the dwelling, the applicant must ensure that each such fixture and appliance meets the rating specified for it.		✓	✓
(d) The applicant must install an on-demand hot water recirculation system which regulates all hot water use throughout the dwelling, where indicated for a dwelling in the "Hot water recirculation" column of the table below.		✓	✓
(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
D119, D121, D122, D123, D129, D219, D221, D222, D223, D229, D319, D321, D322, D323, D329, D419, D421, D422, D423, D429, D519, D521, D522, D523, D524, D525, D526, D527, D617, D618, D619, D620, D621, D622, D625, D626, DG19, DG20, DG21, DG22,	3 star	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
DG25														

	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
D117, D118, D120, D124, D125, D126, D127, D128, D130, D131, D217, D218, D220, D224, D225, D226, D227, D228, D230, D231, D317, D318, D320, D324, D325, D326, D327, D328, D330, D331, D417, D418, D420, D424, D425, D426, D427, D428, D430, D431,	3 star	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
D517, D518, D520, D624, DG17, DG18, DG24, DG26, DG27														

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

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

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

	<b>Hot water</b>	<b>Bathroom ventilation system</b>		<b>Kitchen ventilation system</b>		<b>Laundry ventilation system</b>	
<b>Dwelling no.</b>	<b>Hot water system</b>	<b>Each bathroom</b>	<b>Operation control</b>	<b>Each kitchen</b>	<b>Operation control</b>	<b>Each laundry</b>	<b>Operation control</b>
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/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
D121, D321, D421, D521, D620	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 6 Star (zoned)	1-phase airconditioning 6 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
D120, D123, D124, D223, D224, D323, D324, D423, D424, D523, D622, DG22, DG24	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 3 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
D117, D118, D119, D122, D125, D126, D127, D128, D129, D130, D131, D217, D218, D219, D220, D221, D222, D225, D226, D227, D228, D229, D230, D231, D317, D318, D319, D320, D322, D325, D326, D327, D328, D329, D330, D331, D417, D418, D419,	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	1-phase airconditioning 5.5 Star (zoned)	2 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
D420, D422, D425, D426, D427, D428, D429, D430, D431, D517, D518, D519, D520, D522, D524, D525, D526, D527, D617, D618, D619, D621, D624, D625, D626, DG17, DG18, DG19, DG20, DG21, DG25, DG26, DG27												

	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
D123, D223, D323, D423, D523, D524, D525, D526, D527, D617, D618, D619, D620, D621, D622, D625, D626, DG22	-	-	-	-	gas cooktop & electric oven	-	no	3 star	-	2 star	yes	no

	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
D117, D118, D119, D120, D121, D122, D124, D125, D126, D127, D128, D129, D130, D131, D217, D218, D219, D220, D221, D222, D224, D225, D226, D227, D228, D229, D230, D231, D317, D318, D319, D320, D321, D322, D324, D325, D326, D327,	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	-	2 star	yes	no

	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
D328, D329, D330, D331, D417, D418, D419, D420, D421, D422, D424, D425, D426, D427, D428, D429, D430, D431, D517, D518, D519, D520, D521, D522, D624, DG17, DG18, DG19, DG20, DG21, DG24, DG25, DG26, DG27												

(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) Commitment (h) below, applies to the rooms or areas of a dwelling which are listed in the "Cross Ventilation" table below as comprising a breeze path for the dwelling.			
(h) The applicant must construct the dwelling so that at least one ventilation opening is provided in each such room or area. (If only one room or area of a dwelling is mentioned for a breeze path, then that room or area must have at least two ventilation openings).		✓	✓
(i) The two ventilation openings referred to in (h), must meet the following specifications: (aa) be located as specified for the breeze path in the table; (bb) not be more than 15 metres apart; (cc) if the dwelling is below the 10th storey of the building, be at least 1 square metre in size, or if the dwelling is on or above the 10th storey, be at least 0.5 square metres in size and be located above door head level in the room; and (dd) have only 1 doorway, or opening less than 2 square metres in size, located in the direct path between them.			

Thermal loads			
Dwelling no.	Heating load (in mJ/m <sup>2</sup> /yr)	Cooling load (in mJ/m <sup>2</sup> /yr)	Corrected Cooling load (in mJ/m <sup>2</sup> /yr)
D120	74.0	28.0	28.0

	Thermal loads		
Dwelling no.	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
D424	115.0	41.0	41.0
D425	112	61	61.0
D426	79	47	47.0
D427	98.0	43.0	43.0
D518	111.0	33.0	33.0
D524	76	37	37.0
D526	111	33	33.0
D527	100	42	42.0
D617	98	69	69.0
D618	93	42	42.0
D619	94	27	27.0
D620	91	56.0	56.0
D621	98	54	54.0
D622	100	57	57.0
D624	90.0	35.0	35.0
D625	125	34.0	34.0
D626	125	60	60.0
DG22	69	58	58.0
DG24	78.0	29.0	29.0
D124, D224, D324	99	41	41.0
D125, D225, D325	97	59	59.0
D126, D226, D326	66.0	46.0	46.0
D127, D227, D327	85	44	44.0
D128, D228, D328, D428	76.0	37.0	37.0
D123, D223, D323, D423, D523	86	57	57.0



	Thermal loads		
Dwelling no.	Heating load (in mJ/m²/yr)	Cooling load (in mJ/m²/yr)	Corrected Cooling load (in mJ/m²/yr)
D131, D231, D331, D431, DG27	100.0	42.0	42.0
D117, D217, D317, D417, D517, DG17	80	53	53.0
D121, D221, D321, D421, D521, DG20	79	57	57.0
D122, D222, D322, D422, D522, DG21	125	56	56.0
D118, D130, D218, D230, D318, D330, D418, D430, DG18, DG26	95.0	34.0	34.0
All other dwellings	78	27	27.0

	Cross ventilation			
Dwelling no.	Breeze path 1	Breeze path 2	Breeze path 3	Breeze path 4
All dwellings	-	-	-	-

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

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

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

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Lift car (No. 2)	-	-	compact fluorescent	connected to lift call button	No
Office / Reception	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Hallway & lobby's	ventilation supply only	time clock or BMS controlled	compact fluorescent	zoned switching	No

Central energy systems	Type	Specification
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	4 star	4 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	5000	To collect run-off from at least: - 1980 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 883 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site
Pool (No. 1)	Volume: 60 kLs	Location: Indoor pool & spa area (25% of total)	-

Central systems	Size	Configuration	Connection (to allow for...)
Spa (No. 1)	Volume: 7 kLs	Location: Indoor pool & spa area (25% of total) Spa cover: yes	-
Fire sprinkler system (No. 1)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Indoor pool & spa area (25% of total)	ventilation (supply + exhaust)	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Gym (25% of total area)	air conditioning system	time clock or BMS controlled	compact fluorescent	manual on / manual off	No
Car park (25% of total area)	ventilation (supply + exhaust)	carbon monoxide monitor + 2-speed fan	fluorescent	zoned switching with motion sensor	No
Switch / Plant / Service areas (25% of)	ventilation exhaust only	interlocked to light	fluorescent	manual on / manual off	No
Garbage rooms (25% of total area)	ventilation exhaust only	-	fluorescent	manual on / manual off	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired storage (manifolded)	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)
Pool (No. 1)	Heating source: no heating	Pump controlled by timer: yes
Spa (No. 1)	Heating system: no heating	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).