



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

13/13 Lagoon St,
NARRABEEN NSW 2101

TURNER + ASSOCIATES

Barber Avenue, Kingswood

To be built at:

1 – 13 Barber Avenue, KINGSWOOD

BASIX Assessment

Date of Issue: 10TH July, 2012

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Turner + Associates. 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 :
Turner + Associates Level 1, 410 Crown Street Surry Hills NSW 2010 Contact : Phone : +61 2 8668 0000 Fax : +61 2 8668 0088	Efficient Living 13/13 Lagoon St, Narrabeen NSW, 2101 Email: tracey@efficientliving.com.au Phone : (02) 9970 6181 Fax : (02) 9944 0293

COVER SHEET
TABLE OF CONTENTS
ANALYSIS WATER USAGE THERMAL COMFORT ENERGY USAGE
INCLUSIONS
ABSA CERTIFICATES
BASIX CERTIFICATES



INTRODUCTION

Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at 1-13 Barber Avenue, KINGSWOOD.

Heating and cooling loads for the development have been determined using BERS thermal simulation software. The report is based on the architectural drawings provided by Turner + Associates. For further details, refer to the individual BASIX certificates and ABSA reports respectively.

ANALYSIS

The BASIX assessment is divided into three sections, each independently measuring the efficiency of the development. These are Water, Thermal Comfort and Energy.

BASIX requires a minimum target of 40% for the Water section. A BERS pass or fail is required for the thermal comfort section and a minimum required target of 20% for the energy section.

WATER

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

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

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

THERMAL COMFORT

Thermal Comfort targets are set by the department of planning in the form of heating and cooling caps. The buildings thermal physics is measured using BERS thermal performance assessment tools. This equates an expected level of energy consumption to heat and cool each dwelling per annum expressed in MJ (mega joules) per square meter of floor area.

Each unit has individual heating and cooling caps and a weighted average heating and cooling load for the whole development. The weighted average caps are a lot harder to achieve than the individual unit caps.

ENERGY

The proposed development has achieved the energy target of 20% to pass this section.

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

BASIX Inclusions – Barber Avenue

All units have reached the targets as set for new dwellings in NSW.

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

Construction general	
Glazing	Doors / windows: Aluminium framed, single glazed.
Roof / ceiling insulation	Roof: Light coloured, concrete slab roof with pebbles Plasterboard ceiling – R2.0 insulation to all top floor units
Wall / floor insulation	External Wall: Concrete block R1.0 to units – 5.01, 5.10, 5.18, 6.01, 6.09, 6.10, 6.11, 6.17 & 6.18 No insulation to all other units Internal walls within units: Plasterboard on studs - no insulation Inter-tenancy walls: Concrete block - no insulation Floors: Concrete – no insulation
BASIX Water inclusions – Score 40/40	
Fixtures (within units)	Showerheads: 3 star (>6 but ≤7.5 L/min) Toilets: 4 star Kitchen taps: 4 star Bathroom taps: 4 star
Fixtures (within common areas)	Showerheads: 3 star (>7.5 but ≤9 L/min) Toilets: 3 star Bathroom taps: 3 star
Appliances (within units)	Dishwashers: 2 star
Central rainwater storage	Tank size: 15 000L Collect run-off from: 1868m ² of roof area (main roof areas of each block only) Connected to: Irrigation of all landscaping and 1 car washing bay
BASIX Energy inclusions – Score Pass 20/20	
Central hot water system	Central gas-fired boiler with R1.0 (~38mm) insulation to ringmain and supply risers
Lift motors	All lifts to have gearless traction with VVVF motor.
Appliances & other efficiency measures (within units)	Electric cooktop & electric oven Dishwashers: 2.5 star Clothes dryers: 2 star
Heating & cooling (within units)	All units to have individual single phase reverse cycle air conditioning: Cooling – 1.5 star (new rating) and Heating - 2.5 star (new rating)
Artificial lighting (within units)	Fluorescent lighting, to be provided to all living areas and hallways.
Ventilation systems (within units)	Bathroom ventilation: Individual fan, ducted to roof or façade – Interlocked to light Laundry ventilation: Individual fan, ducted to roof or façade – Interlocked to light Kitchen range-hood: Individual fan, not ducted roof– manual switch on/off

Artificial lighting (within common areas)	Car park area: fluorescent – zoned switching with motion sensor Lifts: compact fluorescent – connected to lift call button Garbage rooms: fluorescent – manual on / manual off Plant areas: fluorescent – manual on / manual off Lobbies: compact fluorescent – no efficiency measure Hallways: compact fluorescent – zoned switching with daylight sensor
Ventilation systems (within common areas)	Car park area: ventilation (supply + exhaust) - carbon monoxide monitor + VSD fan Garbage rooms: ventilation exhaust only – No efficiency measure required Plant areas: ventilation supply only – interlocked to light Lobbies: ventilation supply only – none i.e. continuous Hallways: no mechanical ventilation

Assessor Certificate

Multiple Dwellings

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

Issued in accordance with
BASIX Thermal Comfort Simulation Method.



Assessor							
Name:	Tracey Cools	Company:	Efficient Living Pty Ltd	ABSA #:	20101		
Address:	13/13 Lagoon St, NARRABEEN NSW 2101						
Phone:	02 9944 0332	Fax:	02 9944 0293	Email:	tracey@efficientliving.com.au		
Declaration of interest:	None						
Client							
Name:	May Karl	Company:	Turner & Associates Architects				
Address:	Level 1, 410 Crown Street, Surry Hills, NSW 2010						
Phone:	(02) 8668 0000	Fax:	(02) 8668 0088	Email:	kmay@turnerassociates.com.au		
Project							
Address:	Barber Avenue, Kingswood						
Applicant:	Aesthete No.3 Pty Ltd c/o Yates Beaggi Lawyers		LGA:	Penrith City Council			
Assessment							
Date:	10/07/12	File ref:	6392	Software:	BERS Pro 4.2	Version:	V110811
Documentation							

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

Affix assessor stamp

Thermal Performance Spec:

Attached, Affixed to drawings Page#: Cover Sheet

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

Job No. 09007. DWG No. EA01[D], EA02[G], EA03[J], EA11[J], EA12[J], EA13[J], EA17[H], EA18[I], EA19[I], EA20[I], EA30[I], EA31[I], EA32[H], EA40[I], EA41[I], EA42[I], EA44[H], EA45[I]

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

Drawings as at 10/07/12



ABSA Assessor Certificate		Assessor # 20101		Certificate # 15430927		Issued: 10/07/12	
Thermal performance specifications						Page 1 of 2	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
5.01	15430927	76	0	64	44	N/A	5.0
5.02	39654514	76	0	60	28	N/A	5.5
5.03	53285752	76	0	51	29	N/A	6.0
5.04	53285752	76	0	51	29	N/A	6.0
5.05	97663035	76	0	72	26	N/A	5.5
5.06	97663035	76	0	72	26	N/A	5.5
5.07	17499342	76	0	48	31	N/A	6.0
5.08	17499342	76	0	48	31	N/A	6.0
5.09	46707743	76	0	88	47	N/A	4.0
5.10	15430927	76	0	64	44	N/A	5.0
5.11	59253063	76	0	80	33	N/A	4.5
5.12	58432264	45	0	78	49	N/A	4.0
5.13	61907708	76	0	57	28	N/A	6.0
5.14	94058725	76	0	53	30	N/A	6.0
5.15	94058725	76	0	53	30	N/A	6.0

ABSA Assessor Certificate		Assessor # 20101		Certificate # 15430927		Issued: 10/07/12	
Thermal performance specifications						Page 2 of 2	
Unit number(s)	Certificate number	Floor area (M ²)		Predict. loads (MJ/M ² /y)		Concessions	Star Rating
		Cond.	Uncond.	Heat	Cool (Sens & Lat)		
5.16	61907708	76	0	57	28	N/A	6.0
5.17	19905336	45	0	84	56	N/A	4.0
5.18	29267515	76	0	63	44	N/A	5.0
6.01	67019454	76	0	76	45	N/A	4.5
6.02	35735059	76	0	74	29	N/A	5.0
6.03	43670604	76	0	63	30	N/A	5.5
6.04	43670604	76	0	63	30	N/A	5.5
6.05	62580582	76	0	87	28	N/A	4.5
6.06	62580582	76	0	87	28	N/A	4.5
6.07	29028604	76	0	58	32	N/A	5.5
6.08	29028604	76	0	58	32	N/A	5.5
6.09	78114752	76	0	65	43	N/A	5.0
6.10	67019454	76	0	76	45	N/A	4.5
6.11	74280079	76	0	57	29	N/A	6.0
6.12	26805106	45	0	86	49	N/A	4.0
6.13	76037132	76	0	70	29	N/A	5.0
6.14	60998865	76	0	67	31	N/A	5.5
6.15	60998865	76	0	67	31	N/A	5.5
6.16	76037132	76	0	70	29	N/A	5.0
6.17	75926667	45	0	50	43	N/A	5.5
6.18	98104693	76	0	74	44	N/A	4.5

Thermal Performance Specifications

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

Windows	Product ID	Glass	Frame	U value	SHGC	Area M ²	Detail
Not yet specified		Single Clear	Aluminium	-	-	Varies	As per details on plans

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

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

External walls	Construction	Insulation	Colour – solar abs.	Detail
Concrete Block		None	Default	As per plans
Concrete Block		R1.0	Default	To units 5.01, 5.10, 5.18, 6.01, 6.09, 6.10, 6.11, 6.17, 6.18

Internal walls	Construction	Insulation	Detail
Plasterboard on Studs		None	To all walls with-in units
Concrete Block lined		None	To Inter-tenancy walls

Floors	Construction	Insulation	Covering	Detail
Concrete		None	Tiles	To all wet areas
			Carpet	To all bedrooms and living area

Ceilings	Construction	Insulation	Detail
Plasterboard		R2.0	To top floor units
		none	Where units are above

Roof	Construction	Insulation	Colour – solar abs.	Detail
Concrete		Pebbles	Light – SA <0.475	to all top floor units

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

Fixed shading	Eaves (width - inc. gutters, h't above windows)	Verandahs, Pergolas (type, description)
0	0	Varies, as per plans
		Covered Balconies – as per plans

Overshadowing	Overshadowing structures	Overshadowing trees
As per plans		N/A

Orientation, Exposure, Ventilation and Infiltration

Orientation of nominal north:	14 degrees
Terrain category:	Suburban
Roof ventilation:	Unventilated
Cross ventilation:	Standard
Subfloor:	Enclosed – units below
Living area open to entry:	Yes
Doors separate living areas:	No
Stair open to heated areas:	No
Seals to windows and doors:	Yes
Exhaust fans without dampers:	No
Ventilated skylights:	No
Open fire, unflued gas heat:	No
Vented downlights:	No
Wall and ceiling vents:	No

ABSA Assessor stamp



BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 436335M

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

Director-General

Date of issue: Tuesday, 10 July 2012

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



Planning &
Infrastructure

Project summary

Project name	Barber Avenue
Street address	1 -13 Barber Avenue Kingswood 2747
Local Government Area	Penrith City Council
Plan type and plan number	deposited 701623
Lot no.	100
Section no.	-
No. of residential flat buildings	1
No. of units in residential flat buildings	36
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score

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

Certificate Prepared by

Name / Company Name: Efficient Living

ABN (if applicable): 82 116 346 082

Description of project

Project address

Project name	Barber Avenue
Street address	1 -13 Barber Avenue Kingswood 2747
Local Government Area	Penrith City Council
Plan type and plan number	deposited 701623
Lot no.	100
Section no.	-

Project type

No. of residential flat buildings	1
No. of units in residential flat buildings	36
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details

Site area (m²)	5851
Roof area (m²)	2327
Non-residential floor area (m²)	14546
Residential car spaces	43
Non-residential car spaces	359

Common area landscape

Common area lawn (m²)	65
Common area garden (m²)	462
Area of indigenous or low water use species (m²)	0

Assessor details

Assessor number	20101
Certificate number	15430927
Climate zone	28

Project score

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

Description of project

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

Residential flat buildings - Building A, 36 dwellings, 7 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
5.01	2	76.0	0.0	0	0
5.05	2	76.0	0.0	0	0
5.09	2	76.0	0.0	0	0
5.13	2	76.0	0.0	0	0
5.17	1	45.0	0.0	0	0
6.03	2	76.0	0.0	0	0
6.07	2	76.0	0.0	0	0
6.11	2	76.0	0.0	0	0
6.15	2	76.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
5.02	2	76.0	0.0	0	0
5.06	2	76.0	0.0	0	0
5.10	2	76.0	0.0	0	0
5.14	2	76.0	0.0	0	0
5.18	2	76.0	0.0	0	0
6.04	2	76.0	0.0	0	0
6.08	2	76.0	0.0	0	0
6.12	1	45.0	0.0	0	0
6.16	2	76.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
5.03	2	76.0	0.0	0	0
5.07	2	76.0	0.0	0	0
5.11	2	76.0	0.0	0	0
5.15	2	76.0	0.0	0	0
6.01	2	76.0	0.0	0	0
6.05	2	76.0	0.0	0	0
6.09	2	76.0	0.0	0	0
6.13	2	76.0	0.0	0	0
6.17	1	45.0	0.0	0	0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
5.04	2	76.0	0.0	0	0
5.08	2	76.0	0.0	0	0
5.12	1	45.0	0.0	0	0
5.16	2	76.0	0.0	0	0
6.02	2	76.0	0.0	0	0
6.06	2	76.0	0.0	0	0
6.10	2	76.0	0.0	0	0
6.14	2	76.0	0.0	0	0
6.18	2	76.0	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 A

Common area	Floor area (m ²)
Lift car (No. 1)	-
Hallways	655

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

Common area	Floor area (m ²)
Ground floor lobby	70

Common areas of the development (non-building specific)

Common area	Floor area (m ²)
Car park area	10110

Common area	Floor area (m ²)
Garbage room	228

Common area	Floor area (m ²)
Plant	313

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - 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 multi-dwelling houses

3. Commitments for single 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 Residential flat buildings - Building A

(a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 6 but <= 7.5 L/min)	4 star	4 star	4 star	-	-	2 star	-	-	-	-	-	-	-

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

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

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

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

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
All dwellings	1-phase airconditioning 1.5 Star (new rating)	1-phase airconditioning 1.5 Star (new rating)	1-phase airconditioning 2.5 Star (new rating)	1-phase airconditioning 2.5 Star (new rating)	0	1	no	no	no	yes	0	no

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	electric cooktop & electric oven	-	no	2.5 star	-	2 star	no	no

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

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(f) The applicant must construct the development in accordance with all thermal performance specifications set out in the Assessor Certificate, and in accordance with those aspects of the development application or application for a complying development certificate which were used to calculate those specifications.		✓	✓
(g) Where there is an in-slab heating or cooling system, the applicant must: (aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or (bb) On a suspended floor, install insulation with an R-value of not less than 1.0 underneath the slab and around the vertical edges of the perimeter of the slab.	✓	✓	✓
(h) The applicant must construct the floors and walls of the development in accordance with the specifications listed in the table below.	✓	✓	✓

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
5.02	60	28
5.09	88	47
5.11	80	33
5.12	78	49
5.17	84	56
5.18	63	44
6.02	74	29
6.09	65	43
6.11	57	29
6.12	86	49
6.17	50	43
6.18	74	44
5.01, 5.10	64	44
5.03, 5.04	51	29
5.05, 5.06	72	26

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
5.07, 5.08	48	31
5.13, 5.16	57	28
5.14, 5.15	53	30
6.01, 6.10	76	45
6.03, 6.04	63	30
6.05, 6.06	87	28
6.07, 6.08	58	32
6.13, 6.16	70	29
All other dwellings	67	31

(b) Common areas and central systems/facilities

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but ≤ 9 L/min)	3 star	3 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 1)	-	-	compact fluorescent	connected to lift call button	No
Lift car (No. 2)	-	-	compact fluorescent	connected to lift call button	No
Ground floor lobby	ventilation supply only	none ie. continuous	compact fluorescent	none	No
Hallways	no mechanical ventilation	-	compact fluorescent	zoned switching with daylight sensor	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 9
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 9

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

(b) Common areas and central systems/facilities

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 7.5 but <= 9 L/min)	3 star	3 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	15000	To collect run-off from at least: - 1868 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 527 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site

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

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	zoned switching with motion sensor	No
Garbage room	ventilation exhaust only	-	fluorescent	manual on / manual off	No
Plant	ventilation supply only	interlocked to light	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: R1.0 (~38 mm); (b) Piping internal to building: R1.0 (~38 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).