

# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Multi Dwelling

Certificate number: 821034M

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. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

Secretary

Date of issue: Monday, 02 October 2017

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



### Project summary

Project name	Bangia Werrington (A&B)
Street address	16 Chapman Street Werrington 2747
Local Government Area	Penrith City Council
Plan type and plan number	deposited 1140594
Lot no.	102
Section no.	-
No. of residential flat buildings	2
No. of units in residential flat buildings	130
No. of multi-dwelling houses	0
No. of single dwelling houses	0

### Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 35	Target 35

### Certificate Prepared by

Name / Company Name: ESD Synergy

ABN (if applicable): 17165174685

# Description of project

## Project address

Project name	Bangia Werrington (A&B)
Street address	16 Chapman Street Werrington 2747
Local Government Area	Penrith City Council
Plan type and plan number	deposited 1140594
Lot no.	102
Section no.	-

## Project type

No. of residential flat buildings	2
No. of units in residential flat buildings	130
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m <sup>2</sup> )	5506.05
Roof area (m <sup>2</sup> )	2314.4
Non-residential floor area (m <sup>2</sup> )	0.0
Residential car spaces	239
Non-residential car spaces	3

## Common area landscape

Common area lawn (m <sup>2</sup> )	252.59
Common area garden (m <sup>2</sup> )	371.32
Area of indigenous or low water use species (m <sup>2</sup> )	185.66

## Assessor details

Assessor number	20241
Certificate number	0001987450
Climate zone	28

## Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 35	Target 35



## Description of project

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

### Residential flat buildings - Building B, 67 dwellings, 5 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> )
B101	3	94.3	0.0	0.0	0.0
B105	1	47.7	0.0	0.0	0.0
B109	1	48.6	0.0	0.0	0.0
B113	2	71.8	0.0	0.0	0.0
B203	3	91.5	0.0	0.0	0.0
B207	2	73.5	0.0	0.0	0.0
B211	1	56.7	0.0	0.0	0.0
B301	3	94.3	0.0	0.0	0.0
B305	1	47.7	0.0	0.0	0.0
B309	1	48.6	0.0	0.0	0.0
B313	2	71.8	0.0	0.0	0.0
B403	2	74.0	0.0	0.0	0.0
B407	2	71.0	0.0	0.0	0.0
B411	3	97.0	0.0	0.0	0.0
BG04	2	74.8	0.0	0.0	0.0
BG08	2	73.9	0.0	0.0	0.0
BG12	1	57.0	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> )
B102	3	94.3	0.0	0.0	0.0
B106	2	81.7	0.0	0.0	0.0
B110	1	52.2	0.0	0.0	0.0
B114	3	103.4	0.0	0.0	0.0
B204	2	78.7	0.0	0.0	0.0
B208	2	73.9	0.0	0.0	0.0
B212	1	57.0	0.0	0.0	0.0
B302	3	94.3	0.0	0.0	0.0
B306	2	81.7	0.0	0.0	0.0
B310	1	52.2	0.0	0.0	0.0
B314	3	103.4	0.0	0.0	0.0
B404	2	68.4	0.0	0.0	0.0
B408	1	51.1	0.0	0.0	0.0
BG01	3	90.4	0.0	0.0	0.0
BG05	1	49.3	0.0	0.0	0.0
BG09	1	47.7	0.0	0.0	0.0
BG13	2	72.6	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> )
B103	3	91.5	0.0	0.0	0.0
B107	2	73.5	0.0	0.0	0.0
B111	1	56.7	0.0	0.0	0.0
B201	3	94.3	0.0	0.0	0.0
B205	1	47.7	0.0	0.0	0.0
B209	1	48.6	0.0	0.0	0.0
B213	2	71.8	0.0	0.0	0.0
B303	3	91.5	0.0	0.0	0.0
B307	2	73.5	0.0	0.0	0.0
B311	1	56.7	0.0	0.0	0.0
B401	2	73.9	0.0	0.0	0.0
B405	3	91.9	0.0	0.0	0.0
B409	2	66.9	0.0	0.0	0.0
BG02	3	92.4	0.0	0.0	0.0
BG06	2	73.3	0.0	0.0	0.0
BG10	1	52.2	0.0	0.0	0.0
BG14	1	65.2	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> )
B104	2	78.7	0.0	0.0	0.0
B108	2	73.9	0.0	0.0	0.0
B112	1	57.0	0.0	0.0	0.0
B202	3	94.3	0.0	0.0	0.0
B206	2	81.7	0.0	0.0	0.0
B210	1	52.2	0.0	0.0	0.0
B214	3	103.4	0.0	0.0	0.0
B304	2	78.7	0.0	0.0	0.0
B308	2	73.9	0.0	0.0	0.0
B312	1	57.0	0.0	0.0	0.0
B402	2	73.9	0.0	0.0	0.0
B406	2	83.5	0.0	0.0	0.0
B410	2	67.8	0.0	0.0	0.0
BG03	2	72.1	0.0	0.0	0.0
BG07	2	73.2	0.0	0.0	0.0
BG11	1	67.1	0.0	0.0	0.0

### Residential flat buildings - Building A, 63 dwellings, 5 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> )
A101	3	94.5	0.0	0.0	0.0
A105	2	72.3	0.0	0.0	0.0
A109	2	78.7	0.0	0.0	0.0
A113	2	79.6	0.0	0.0	0.0
A204	3	92.2	0.0	0.0	0.0
A208	2	72.5	0.0	0.0	0.0
A212	3	92.2	0.0	0.0	0.0
A302	3	92.8	0.0	0.0	0.0
A306	1	48.1	0.0	0.0	0.0
A310	1	48.1	0.0	0.0	0.0
A314	3	94.4	0.0	0.0	0.0
A404	3	98.4	0.0	0.0	0.0
A408	3	91.8	0.0	0.0	0.0
AG02	3	93.4	0.0	0.0	0.0
AG06	1	49.5	0.0	0.0	0.0
AG10	1	49.5	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> )
A102	3	92.8	0.0	0.0	0.0
A106	1	48.1	0.0	0.0	0.0
A110	1	48.1	0.0	0.0	0.0
A201	3	94.5	0.0	0.0	0.0
A205	2	72.3	0.0	0.0	0.0
A209	2	78.7	0.0	0.0	0.0
A213	3	98.4	0.0	0.0	0.0
A303	2	78.7	0.0	0.0	0.0
A307	2	72.8	0.0	0.0	0.0
A311	2	73.9	0.0	0.0	0.0
A401	2	73.3	0.0	0.0	0.0
A405	3	109.2	0.0	0.0	0.0
A409	3	91.2	0.0	0.0	0.0
AG03	2	74.3	0.0	0.0	0.0
AG07	2	72.8	0.0	0.0	0.0
AG11	2	77.8	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> )
A103	2	78.7	0.0	0.0	0.0
A107	2	72.8	0.0	0.0	0.0
A111	1	53.9	0.0	0.0	0.0
A202	3	92.8	0.0	0.0	0.0
A206	1	48.1	0.0	0.0	0.0
A210	1	48.1	0.0	0.0	0.0
A214	3	94.4	0.0	0.0	0.0
A304	3	92.2	0.0	0.0	0.0
A308	2	72.5	0.0	0.0	0.0
A312	3	92.2	0.0	0.0	0.0
A402	2	73.8	0.0	0.0	0.0
A406	3	98.9	0.0	0.0	0.0
A410	3	102.9	0.0	0.0	0.0
AG04	2	77.8	0.0	0.0	0.0
AG08	2	72.5	0.0	0.0	0.0
AG12	2	76.8	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> )
A104	3	92.2	0.0	0.0	0.0
A108	2	72.5	0.0	0.0	0.0
A112	3	92.2	0.0	0.0	0.0
A203	2	78.7	0.0	0.0	0.0
A207	2	72.8	0.0	0.0	0.0
A211	2	73.9	0.0	0.0	0.0
A301	2	94.5	0.0	0.0	0.0
A305	2	72.3	0.0	0.0	0.0
A309	2	78.7	0.0	0.0	0.0
A313	3	98.4	0.0	0.0	0.0
A403	3	91.8	0.0	0.0	0.0
A407	2	57.7	0.0	0.0	0.0
AG01	3	93.4	0.0	0.0	0.0
AG05	1	65.7	0.0	0.0	0.0
AG09	2	81.5	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 B

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

### Common areas of unit building - Building A

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

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

Common area	Floor area (m <sup>2</sup> )
Car park area (No. 1)	4946.34
Ground floor lobby type (No. 1)	219.44

Common area	Floor area (m <sup>2</sup> )
Lift motor room (No. 1)	26.28
Hallway/lobby type (No. 1)	596.62

Common area	Floor area (m <sup>2</sup> )
Garbage room (No. 1)	86.03

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - 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 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

## 3. Commitments for multi-dwelling houses

## 4. Commitments for single dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

### 1. Commitments for Residential flat buildings - Building B

#### (a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 6 but <= 7.5 L/min)	4 star	4 star	4 star	no	-	4 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 2	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/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
B101, B102, B103, B114, B201, B202, B203, B214, B301, B302, B303, B314, B405, B411, BG01, BG02	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
B105, B109, B110, B111, B112, B205, B209, B210, B211, B212, B305, B309, B310, B311, B312, B408, BG05, BG09, BG10, BG11, BG12, BG14	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1 (dedicated)	1 (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
All other dwellings	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4 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/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
B101	19.9	36.5
B102	14.6	41.0
B103	41.7	22.6
B104	53.7	24.0
B105	60.3	39.2
B106	56.6	25.4
B107	53.8	17.2
B108	50.1	26.1
B109	57.6	45.0
B110	25.9	32.3
B111	46.4	29.8
B112	54.4	26.3
B113	55.2	29.2
B114	62.6	25.2
B201	20.3	35.6

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
B202	14.9	40.4
B203	42.2	22.2
B204	43.6	23.7
B205	61.2	39.0
B206	36.6	24.5
B207	54.4	17.3
B208	50.7	26.0
B209	58.4	44.5
B210	26.3	31.5
B211	47.1	29.7
B212	55.1	26.5
B213	55.9	29.2
B214	56.9	25.4
B301	28.7	37.0
B302	21.1	41.9
B303	53.7	23.5
B304	55.1	24.6
B305	62.3	38.4
B306	41.4	25.0
B307	57.3	17.4
B308	60.9	26.1
B309	62.9	43.4
B310	30.7	31.8
B311	60.2	30.7
B312	58.6	24.2
B313	62.9	28.4
B314	60.0	22.3

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
B401	24.2	36.8
B402	16.8	57.2
B403	59.6	45.8
B404	54.0	62.1
B405	59.9	52.7
B406	60.5	61.9
B407	62.2	47.5
B408	59.7	53.7
B409	62.9	51.1
B410	61.0	50.0
B411	58.3	45.7
BG01	57.6	23.2
BG02	47.4	34.2
BG03	62.1	21.2
BG04	62.8	21.2
BG05	55.6	29.5
BG06	63.1	25.4
BG07	62.1	12.7
BG08	62.3	18.0
BG09	60.7	36.5
BG10	54.6	31.8
BG11	63.1	19.3
BG12	60.9	23.3
BG13	59.7	21.0
All other dwellings	63.1	19.5

**(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	no common facility	no common facility	no common facility	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.2)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Central hot water system (No. 2)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 7



## 2. 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	no	-	4 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	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/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
A106, A110, A111, A206, A210, A306, A310, AG05, AG06, AG10	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
A101, A102, A104, A112, A201, A202, A204, A212, A213, A214, A302, A304, A312, A313, A314, A403, A404, A405, A406, A408, A409, A410, AG01, AG02	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no



Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4 star	-	2 star	no	no

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
A101	31.4	59.3
A102	22.9	40.9
A103	40.9	57.0
A105	31.7	58.4
A107	33.5	31.7
A108	50.5	20.6
A109	42.8	58.7
A111	32.6	62.7
A113	45.5	27.1
A201	37.8	60.7
A202	21.0	42.9
A203	32.3	56.5
A205	32.2	57.1
A207	34.0	31.5
A208	51.1	20.5
A209	34.3	58.6
A211	37.5	55.4
A213	60.8	38.9
A214	48.3	24.4
A301	38.5	29.6
A302	30.4	43.6
A303	40.3	57.2
A305	34.6	56.5
A307	48.4	32.1
A308	62.3	21.6
A309	42.1	58.1
A311	38.1	54.6

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
A313	50.5	43.6
A314	50.0	26.3
A401	17.4	59.8
A402	18.4	45.3
A404	59.1	59.4
A405	59.3	59.5
A406	35.4	62.5
A407	39.3	63.1
A409	62.0	50.8
A410	62.4	36.0
AG01	57.8	48.0
AG02	47.7	44.8
AG03	58.0	63.0
AG05	45.8	58.2
AG07	62.4	28.0
AG08	62.6	15.2
AG09	60.5	31.5
AG12	62.6	26.9
A104, A112	62.3	27.6
A106, A110	61.8	32.9
A204, A212	55.2	27.3
A206, A210	43.0	32.3
A304, A312	62.8	28.3
A306, A310	43.8	31.6
A403, A408	62.7	48.0
AG04, AG11	59.9	27.7
All other dwellings	61.6	36.8



**(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	no common facility	no common facility	no common facility	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	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
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 7

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

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	1713.0	To collect run-off from at least: - 242.34 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 0.0 square metres of garden/lawn area in the development - 0.0 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 623.91 square metres of common landscaped area on the site - car washing in 2 car washing bays on the site

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

Common area	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 (No. 1)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	time clock and motion sensors	No
Lift motor room (No. 1)	ventilation exhaust only	none ie. continuous	fluorescent	manual on / manual off	No
Garbage room (No. 1)	ventilation exhaust only	-	fluorescent	motion sensors	No
Ground floor lobby type (No. 1)	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	No
Hallway/lobby type (No. 1)	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	No

## Notes

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

## Legend

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



# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Multi Dwelling

Certificate number: 821030M

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. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

Secretary

Date of issue: Tuesday, 03 October 2017

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



### Project summary

Project name	Bangia Werrington (C&D)
Street address	16 Chapman Street Werrington 2747
Local Government Area	Penrith City Council
Plan type and plan number	deposited 1140594
Lot no.	102
Section no.	-
No. of residential flat buildings	2
No. of units in residential flat buildings	130
No. of multi-dwelling houses	0
No. of single dwelling houses	0

### Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 35	Target 35

### Certificate Prepared by

Name / Company Name: ESD Synergy

ABN (if applicable): 17165174685

# Description of project

## Project address

Project name	Bangia Werrington (C&D)
Street address	16 Chapman Street Werrington 2747
Local Government Area	Penrith City Council
Plan type and plan number	deposited 1140594
Lot no.	102
Section no.	-

## Project type

No. of residential flat buildings	2
No. of units in residential flat buildings	130
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m <sup>2</sup> )	5506.05
Roof area (m <sup>2</sup> )	2314.4
Non-residential floor area (m <sup>2</sup> )	0.0
Residential car spaces	242
Non-residential car spaces	3

## Common area landscape

Common area lawn (m <sup>2</sup> )	252.59
Common area garden (m <sup>2</sup> )	371.32
Area of indigenous or low water use species (m <sup>2</sup> )	185.66

## Assessor details

Assessor number	20754
Certificate number	0001991070
Climate zone	28

## Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 35	Target 35



## Description of project

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

### Residential flat buildings - Building C, 67 dwellings, 5 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	3	87.6	0.0	0.0	0.0
C105	2	82.9	0.0	0.0	0.0
C109	1	51.7	0.0	0.0	0.0
C113	3	105.2	0.0	0.0	0.0
C203	2	79.1	0.0	0.0	0.0
C207	2	73.8	0.0	0.0	0.0
C211	1	55.9	0.0	0.0	0.0
C301	3	87.6	0.0	0.0	0.0
C305	2	82.9	0.0	0.0	0.0
C309	1	51.7	0.0	0.0	0.0
C313	3	105.2	0.0	0.0	0.0
C403	2	68.5	0.0	0.0	0.0
C407	1	51.3	0.0	0.0	0.0
C411	3	96.5	0.0	0.0	0.0
CG04	2	73.5	0.0	0.0	0.0
CG08	2	74.4	0.0	0.0	0.0
CG12	1	67.9	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> )
C102	3	94.9	0.0	0.0	0.0
C106	1	49.6	0.0	0.0	0.0
C110	1	49.3	0.0	0.0	0.0
C114	2	73.9	0.0	0.0	0.0
C204	3	92.2	0.0	0.0	0.0
C208	2	74.4	0.0	0.0	0.0
C212	1	57.3	0.0	0.0	0.0
C302	3	94.9	0.0	0.0	0.0
C306	1	49.6	0.0	0.0	0.0
C310	1	49.3	0.0	0.0	0.0
C314	2	73.9	0.0	0.0	0.0
C404	2	75.0	0.0	0.0	0.0
C408	2	72.0	0.0	0.0	0.0
CG01	3	92.3	0.0	0.0	0.0
CG05	2	74.4	0.0	0.0	0.0
CG09	1	52.7	0.0	0.0	0.0
CG13	1	65.2	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> )
C103	2	79.1	0.0	0.0	0.0
C107	2	73.8	0.0	0.0	0.0
C111	1	55.9	0.0	0.0	0.0
C201	3	87.6	0.0	0.0	0.0
C205	2	82.9	0.0	0.0	0.0
C209	1	51.7	0.0	0.0	0.0
C213	3	105.2	0.0	0.0	0.0
C303	2	79.1	0.0	0.0	0.0
C307	2	73.8	0.0	0.0	0.0
C311	1	55.9	0.0	0.0	0.0
C401	2	74.2	0.0	0.0	0.0
C405	2	84.6	0.0	0.0	0.0
C409	2	67.5	0.0	0.0	0.0
CG02	3	94.1	0.0	0.0	0.0
CG06	1	51.7	0.0	0.0	0.0
CG10	1	49.3	0.0	0.0	0.0
CG14	2	73.1	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> )
C104	3	92.2	0.0	0.0	0.0
C108	2	74.4	0.0	0.0	0.0
C112	1	57.3	0.0	0.0	0.0
C202	3	94.9	0.0	0.0	0.0
C206	1	49.6	0.0	0.0	0.0
C210	1	49.3	0.0	0.0	0.0
C214	2	73.9	0.0	0.0	0.0
C304	3	92.2	0.0	0.0	0.0
C308	2	74.4	0.0	0.0	0.0
C312	1	57.3	0.0	0.0	0.0
C402	2	74.5	0.0	0.0	0.0
C406	3	91.4	0.0	0.0	0.0
C410	2	68.4	0.0	0.0	0.0
CG03	2	76.7	0.0	0.0	0.0
CG07	2	74.3	0.0	0.0	0.0
CG11	1	55.9	0.0	0.0	0.0

### Residential flat buildings - Building D, 63 dwellings, 5 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> )
D101	3	92.8	0.0	0.0	0.0
D105	1	48.1	0.0	0.0	0.0
D109	1	47.9	0.0	0.0	0.0
D113	2	79.6	0.0	0.0	0.0
D204	2	78.7	0.0	0.0	0.0
D208	2	72.5	0.0	0.0	0.0
D212	2	75.0	0.0	0.0	0.0
D302	3	94.7	0.0	0.0	0.0
D306	2	73.4	0.0	0.0	0.0
D310	2	77.7	0.0	0.0	0.0
D314	3	97.9	0.0	0.0	0.0
D404	3	92.3	0.0	0.0	0.0
D408	1	57.6	0.0	0.0	0.0
DG02	3	94.4	0.0	0.0	0.0
DG06	1	65.2	0.0	0.0	0.0
DG10	2	81.5	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> )
D102	2	94.7	0.0	0.0	0.0
D106	2	73.4	0.0	0.0	0.0
D110	2	77.7	0.0	0.0	0.0
D201	3	92.8	0.0	0.0	0.0
D205	1	48.1	0.0	0.0	0.0
D209	1	47.9	0.0	0.0	0.0
D213	3	96.2	0.0	0.0	0.0
D303	2	92.6	0.0	0.0	0.0
D307	2	72.8	0.0	0.0	0.0
D311	3	95.3	0.0	0.0	0.0
D401	2	73.8	0.0	0.0	0.0
D405	3	98.9	0.0	0.0	0.0
D409	3	96.3	0.0	0.0	0.0
DG03	2	77.8	0.0	0.0	0.0
DG07	2	72.8	0.0	0.0	0.0
DG11	2	76.3	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> )
D103	3	92.6	0.0	0.0	0.0
D107	2	72.8	0.0	0.0	0.0
D111	3	94.9	0.0	0.0	0.0
D202	3	94.7	0.0	0.0	0.0
D206	2	73.4	0.0	0.0	0.0
D210	2	77.7	0.0	0.0	0.0
D214	3	97.9	0.0	0.0	0.0
D304	2	78.7	0.0	0.0	0.0
D308	2	72.5	0.0	0.0	0.0
D312	2	75.0	0.0	0.0	0.0
D402	2	73.6	0.0	0.0	0.0
D406	3	109.2	0.0	0.0	0.0
D410	3	92.1	0.0	0.0	0.0
DG04	2	74.2	0.0	0.0	0.0
DG08	2	72.5	0.0	0.0	0.0
DG12	2	77.8	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> )
D104	2	78.7	0.0	0.0	0.0
D108	2	72.5	0.0	0.0	0.0
D112	1	54.0	0.0	0.0	0.0
D203	3	92.6	0.0	0.0	0.0
D207	2	72.8	0.0	0.0	0.0
D211	3	95.3	0.0	0.0	0.0
D301	3	92.8	0.0	0.0	0.0
D305	1	48.1	0.0	0.0	0.0
D309	1	47.9	0.0	0.0	0.0
D313	3	96.2	0.0	0.0	0.0
D403	3	98.4	0.0	0.0	0.0
D407	3	102.9	0.0	0.0	0.0
DG01	3	94.1	0.0	0.0	0.0
DG05	1	49.5	0.0	0.0	0.0
DG09	1	48.8	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)	-

### Common areas of unit building - Building D

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

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

Common area	Floor area (m <sup>2</sup> )
Car park area (No. 1)	4946.34
Ground floor lobby type (No. 1)	219.44

Common area	Floor area (m <sup>2</sup> )
Lift motor room (No. 1)	26.28
Hallway/lobby type (No. 1)	596.62

Common area	Floor area (m <sup>2</sup> )
Garbage room (No. 1)	86.03

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - 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 Residential flat buildings - Building D

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 3. Commitments for multi-dwelling houses

## 4. Commitments for single dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

### 1. Commitments for Residential flat buildings - Building C

#### (a) Dwellings

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

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



<b>(ii) Energy</b>	<b>Show on DA plans</b>	<b>Show on CC/CDC plans &amp; specs</b>	<b>Certifier check</b>
(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, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/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
C101, C102, C104, C113, C201, C202, C204, C213, C301, C302, C304, C313, C406, C411, CG01, CG02	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
C106, C109, C110, C111, C112, C206, C209, C210, C211, C212, C306, C309, C310, C311, C312, C407, CG06, CG09, CG10, CG11, CG12, CG13	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1 (dedicated)	1 (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
All other dwellings	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4 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.	✓	✓	✓

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
C101	30.7	36.3
C102	13.3	28.5
C103	59.1	26.5
C104	49.2	20.5
C105	54.1	17.6
C106	55.0	29.9
C107	56.6	16.5
C108	45.9	18.0
C109	28.3	28.9
C110	59.4	32.8
C111	50.1	27.9
C112	50.7	26.1
C113	59.5	21.7
C114	53.4	21.7
C201	32.2	36.5

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
C202	13.4	29.7
C203	52.7	26.3
C204	42.1	20.3
C205	38.1	17.6
C206	52.3	30.2
C207	57.2	16.4
C208	46.5	17.7
C209	28.8	28.8
C210	53.4	32.5
C211	50.9	28.0
C212	47.5	25.7
C213	51.4	22.2
C214	50.6	21.6
C301	30.6	42.0
C302	29.5	32.8
C303	57.2	25.6
C304	46.6	21.1
C305	46.1	20.1
C306	52.1	30.8
C307	57.9	16.5
C308	63.0	19.9
C309	33.0	28.8
C310	58.1	32.1
C311	54.3	27.4
C312	50.6	25.7
C313	62.7	23.2
C314	62.8	22.7

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
C401	45.6	44.7
C402	24.1	37.5
C403	58.3	45.1
C404	57.3	40.2
C405	60.5	44.5
C406	56.9	38.5
C407	54.1	43.9
C408	58.9	35.7
C409	61.9	39.5
C410	60.2	35.5
C411	57.2	29.1
CG01	59.4	29.5
CG02	56.6	30.6
CG03	58.9	19.2
CG04	58.3	18.6
CG05	63.1	19.8
CG06	58.2	24.1
CG07	58.5	12.0
CG08	56.9	14.3
CG09	56.9	30.5
CG10	52.0	26.4
CG11	62.5	23.3
CG12	62.9	16.4
CG13	62.6	24.0
All other dwellings	59.8	15.6

**(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	no common facility	no common facility	no common facility	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	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
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 7



## 2. Commitments for Residential flat buildings - Building D

### (a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 6 but <= 7.5 L/min)	4 star	4 star	4 star	no	-	4 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 2	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/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
D105, D109, D112, D205, D209, D305, D309, D408, DG05, DG06, DG09	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
D101, D103, D111, D201, D202, D203, D211, D213, D214, D301, D302, D311, D313, D314, D403, D404, D405, D406, D407, D409, D410, DG01, DG02	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no



Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4 star	-	2 star	no	no

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
D101	20.9	35.3
D102	23.1	44.1
D103	55.4	23.7
D104	47.4	38.3
D105	55.8	39.0
D106	31.4	45.9
D107	34.8	40.6
D108	53.1	19.6
D109	36.2	36.9
D110	48.9	57.9
D111	60.8	25.9
D112	45.5	61.2
D113	62.0	36.2
D201	13.8	38.6
D202	24.6	43.1
D203	50.8	23.8
D204	40.2	37.7
D205	56.6	38.4
D206	31.9	45.3
D207	35.4	40.4
D208	53.8	19.2
D209	36.8	36.4
D210	49.6	57.4
D211	56.5	25.9
D212	24.6	44.7
D213	54.5	32.7
D214	60.3	26.4



Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
D301	16.6	28.8
D302	17.7	30.7
D303	56.4	24.1
D304	43.0	36.9
D305	57.2	37.8
D306	36.4	40.5
D307	48.6	38.0
D308	53.8	21.5
D309	37.3	36.1
D310	53.5	39.0
D311	58.7	24.4
D312	19.4	45.2
D313	56.1	33.1
D314	39.5	32.5
D401	24.3	43.6
D402	27.2	57.9
D403	56.3	43.8
D404	54.8	44.3
D405	51.7	55.5
D406	56.6	57.8
D407	56.7	44.4
D408	34.4	47.4
D409	45.4	48.3
D410	60.1	46.8
DG01	59.3	30.7
DG02	46.7	42.7
DG03	52.7	21.4

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
DG04	51.3	43.5
DG05	54.5	38.1
DG06	41.9	45.0
DG07	60.2	30.5
DG08	56.3	12.9
DG09	59.9	42.9
DG10	60.3	28.8
DG11	57.3	25.0
All other dwellings	62.9	37.1

**(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	no common facility	no common facility	no common facility	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	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
Lift car (No.2)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Central hot water system (No. 2)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 7

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

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	1713.0	To collect run-off from at least: - 242.34 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 0.0 square metres of garden/lawn area in the development - 0.0 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 623.91 square metres of common landscaped area on the site - car washing in 2 car washing bays on the site

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

Common area	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 (No. 1)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	time clock and motion sensors	No
Lift motor room (No. 1)	ventilation exhaust only	none ie. continuous	fluorescent	manual on / manual off	No
Garbage room (No. 1)	ventilation exhaust only	-	fluorescent	motion sensors	No
Ground floor lobby type (No. 1)	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	No
Hallway/lobby type (No. 1)	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	No



## Notes

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

## Legend

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

# BASIX<sup>®</sup>Certificate

Building Sustainability Index [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

## Multi Dwelling

Certificate number: 821028M

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. This document is available at [www.basix.nsw.gov.au](http://www.basix.nsw.gov.au)

Secretary

Date of issue: Tuesday, 03 October 2017

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



### Project summary

Project name	Bangia Werrington (E&F)
Street address	16 Chapman Street Werrington 2747
Local Government Area	Penrith City Council
Plan type and plan number	deposited 1140594
Lot no.	102
Section no.	-
No. of residential flat buildings	2
No. of units in residential flat buildings	135
No. of multi-dwelling houses	0
No. of single dwelling houses	0

### Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 35	Target 35

### Certificate Prepared by

Name / Company Name: ESD Synergy

ABN (if applicable): 17165174685

# Description of project

## Project address

Project name	Bangia Werrington (E&F)
Street address	16 Chapman Street Werrington 2747
Local Government Area	Penrith City Council
Plan type and plan number	deposited 1140594
Lot no.	102
Section no.	-

## Project type

No. of residential flat buildings	2
No. of units in residential flat buildings	135
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m <sup>2</sup> )	5717.82
Roof area (m <sup>2</sup> )	2403.41
Non-residential floor area (m <sup>2</sup> )	0.0
Residential car spaces	256
Non-residential car spaces	3

## Common area landscape

Common area lawn (m <sup>2</sup> )	262.31
Common area garden (m <sup>2</sup> )	385.6
Area of indigenous or low water use species (m <sup>2</sup> )	192.8

## Assessor details

Assessor number	20754
Certificate number	0001991070
Climate zone	28

## Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 35	Target 35

## Description of project

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

### Residential flat buildings - Building F, 72 dwellings, 5 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> )
F101	3	97.5	0.0	0.0	0.0
F105	1	55.6	0.0	0.0	0.0
F109	2	74.8	0.0	0.0	0.0
F113	2	79.8	0.0	0.0	0.0
F202	2	67.6	0.0	0.0	0.0
F206	1	49.3	0.0	0.0	0.0
F210	1	52.8	0.0	0.0	0.0
F214	3	94.7	0.0	0.0	0.0
F303	2	75.6	0.0	0.0	0.0
F307	1	51.3	0.0	0.0	0.0
F311	2	73.5	0.0	0.0	0.0
F315	3	95.9	0.0	0.0	0.0
F404	2	67.0	0.0	0.0	0.0
F408	2	82.4	0.0	0.0	0.0
F412	3	93.7	0.0	0.0	0.0
FG04	1	60.4	0.0	0.0	0.0
FG08	2	72.1	0.0	0.0	0.0
FG12	2	72.5	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> )
F102	2	67.6	0.0	0.0	0.0
F106	1	49.3	0.0	0.0	0.0
F110	1	52.8	0.0	0.0	0.0
F114	3	94.7	0.0	0.0	0.0
F203	2	75.6	0.0	0.0	0.0
F207	1	51.3	0.0	0.0	0.0
F211	2	73.5	0.0	0.0	0.0
F215	3	95.9	0.0	0.0	0.0
F304	1	57.7	0.0	0.0	0.0
F308	2	72.1	0.0	0.0	0.0
F312	3	92.1	0.0	0.0	0.0
F401	2	72.3	0.0	0.0	0.0
F405	2	71.1	0.0	0.0	0.0
F409	2	75.9	0.0	0.0	0.0
FG01	3	96.8	0.0	0.0	0.0
FG05	1	55.6	0.0	0.0	0.0
FG09	2	73.0	0.0	0.0	0.0
FG13	2	82.6	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> )
F103	2	75.6	0.0	0.0	0.0
F107	1	51.3	0.0	0.0	0.0
F111	2	73.5	0.0	0.0	0.0
F115	3	95.9	0.0	0.0	0.0
F204	1	57.7	0.0	0.0	0.0
F208	2	72.1	0.0	0.0	0.0
F212	3	92.1	0.0	0.0	0.0
F301	3	97.5	0.0	0.0	0.0
F305	1	55.6	0.0	0.0	0.0
F309	2	74.8	0.0	0.0	0.0
F313	2	79.8	0.0	0.0	0.0
F402	2	71.9	0.0	0.0	0.0
F406	1	50.7	0.0	0.0	0.0
F410	2	68.0	0.0	0.0	0.0
FG02	1	52.5	0.0	0.0	0.0
FG06	1	50.3	0.0	0.0	0.0
FG10	1	51.9	0.0	0.0	0.0
FG14	3	89.5	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> )
F104	1	57.7	0.0	0.0	0.0
F108	2	72.1	0.0	0.0	0.0
F112	3	92.1	0.0	0.0	0.0
F201	3	97.5	0.0	0.0	0.0
F205	1	55.6	0.0	0.0	0.0
F209	2	74.8	0.0	0.0	0.0
F213	2	79.8	0.0	0.0	0.0
F302	2	67.6	0.0	0.0	0.0
F306	1	49.3	0.0	0.0	0.0
F310	1	52.8	0.0	0.0	0.0
F314	3	94.7	0.0	0.0	0.0
F403	2	68.3	0.0	0.0	0.0
F407	3	93.0	0.0	0.0	0.0
F411	3	88.7	0.0	0.0	0.0
FG03	2	72.6	0.0	0.0	0.0
FG07	1	52.5	0.0	0.0	0.0
FG11	2	77.0	0.0	0.0	0.0
FG15	3	94.2	0.0	0.0	0.0

## Residential flat buildings - Building E, 63 dwellings, 5 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> )
E101	1	40.9	0.0	0.0	0.0
E105	2	72.7	0.0	0.0	0.0
E109	2	73.3	0.0	0.0	0.0
E113	3	98.8	0.0	0.0	0.0
E204	3	93.2	0.0	0.0	0.0
E208	2	71.7	0.0	0.0	0.0
E212	3	94.1	0.0	0.0	0.0
E302	3	96.1	0.0	0.0	0.0
E306	1	48.2	0.0	0.0	0.0
E310	1	48.2	0.0	0.0	0.0
E314	3	98.8	0.0	0.0	0.0
E404	3	98.5	0.0	0.0	0.0
E408	3	92.6	0.0	0.0	0.0
EG02	2	74.1	0.0	0.0	0.0
EG06	2	70.9	0.0	0.0	0.0
EG10	2	77.3	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> )
E102	3	100.5	0.0	0.0	0.0
E106	1	48.2	0.0	0.0	0.0
E110	1	48.2	0.0	0.0	0.0
E201	3	91.9	0.0	0.0	0.0
E205	2	73.6	0.0	0.0	0.0
E209	2	75.2	0.0	0.0	0.0
E213	3	91.6	0.0	0.0	0.0
E303	2	71.7	0.0	0.0	0.0
E307	2	72.7	0.0	0.0	0.0
E311	2	73.3	0.0	0.0	0.0
E401	3	93.2	0.0	0.0	0.0
E405	3	108.4	0.0	0.0	0.0
E409	3	91.0	0.0	0.0	0.0
EG03	2	73.7	0.0	0.0	0.0
EG07	2	83.4	0.0	0.0	0.0
EG11	3	93.1	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> )
E103	2	73.6	0.0	0.0	0.0
E107	2	75.2	0.0	0.0	0.0
E111	3	91.6	0.0	0.0	0.0
E202	3	96.1	0.0	0.0	0.0
E206	1	48.2	0.0	0.0	0.0
E210	1	48.2	0.0	0.0	0.0
E214	3	98.8	0.0	0.0	0.0
E304	3	93.2	0.0	0.0	0.0
E308	2	71.7	0.0	0.0	0.0
E312	3	94.1	0.0	0.0	0.0
E402	3	92.4	0.0	0.0	0.0
E406	3	98.6	0.0	0.0	0.0
E410	3	100.4	0.0	0.0	0.0
EG04	1	49.5	0.0	0.0	0.0
EG08	1	48.2	0.0	0.0	0.0
EG12	3	97.7	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> )
E104	3	93.2	0.0	0.0	0.0
E108	2	71.7	0.0	0.0	0.0
E112	3	94.1	0.0	0.0	0.0
E203	2	71.7	0.0	0.0	0.0
E207	2	72.7	0.0	0.0	0.0
E211	2	73.3	0.0	0.0	0.0
E301	3	91.9	0.0	0.0	0.0
E305	2	73.6	0.0	0.0	0.0
E309	2	75.2	0.0	0.0	0.0
E313	3	91.6	0.0	0.0	0.0
E403	3	93.6	0.0	0.0	0.0
E407	1	58.0	0.0	0.0	0.0
EG01	2	75.2	0.0	0.0	0.0
EG05	2	72.4	0.0	0.0	0.0
EG09	1	64.1	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 F

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

### Common areas of unit building - Building E

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

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

Common area	Floor area (m <sup>2</sup> )
Car park area (No. 1)	5136.58
Ground floor lobby type (No. 1)	227.88

Common area	Floor area (m <sup>2</sup> )
Lift motor room (No. 1)	27.29
Hallway/lobby type (No. 1)	619.56

Common area	Floor area (m <sup>2</sup> )
Garbage room (No. 1)	89.34

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - Building F

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 2. Commitments for Residential flat buildings - Building E

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 3. Commitments for multi-dwelling houses

## 4. Commitments for single dwelling houses

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

- (i) Water
- (ii) Energy



## Schedule of BASIX commitments

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

### 1. Commitments for Residential flat buildings - Building F

#### (a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 6 but <= 7.5 L/min)	4 star	4 star	4 star	no	-	4 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 2	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/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
F101, F114, F115, F201, F214, F215, F301, F314, F315, F407, F411, F412, FG01, FG14, FG15	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
F104, F105, F106, F107, F110, F204, F205, F206, F207, F210, F304, F305, F306, F307, F310, F406, FG02, FG04, FG05, FG06, FG07, FG10	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1 (dedicated)	1 (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
All other dwellings	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4 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/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
F101	56.1	22.0
F102	59.1	32.9
F103	51.8	25.7
F104	39.3	25.1
F105	49.9	26.3
F106	54.9	43.8
F107	29.8	24.9
F108	52.0	21.8
F109	53.7	16.5
F110	53.2	29.6
F111	45.4	25.0
F112	56.7	18.7
F113	57.6	24.9
F114	50.6	27.7
F115	58.5	21.6

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
F201	43.8	21.9
F202	58.2	32.4
F203	52.4	25.3
F204	40.0	25.2
F205	50.6	26.5
F206	54.4	43.6
F207	30.3	24.7
F208	52.7	21.6
F209	54.3	16.6
F210	48.6	29.3
F211	45.9	25.3
F212	39.7	18.2
F213	56.0	24.9
F214	50.8	27.1
F215	51.2	21.9
F301	57.1	23.7
F302	56.2	30.1
F303	56.3	24.8
F304	55.8	26.1
F305	54.0	26.0
F306	58.8	42.3
F307	34.5	24.9
F308	58.5	20.9
F309	55.1	16.7
F310	49.3	29.4
F311	46.5	25.2
F312	42.8	18.2



Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
F313	56.7	23.3
F314	61.4	28.6
F315	58.9	21.6
F401	53.1	27.4
F402	57.4	33.3
F403	61.2	45.5
F404	53.9	46.1
F405	62.3	49.9
F406	57.4	57.2
F407	62.2	39.9
F408	39.1	54.2
F409	58.9	43.8
F410	51.9	52.9
F411	49.9	43.7
F412	62.4	42.0
FG01	56.2	14.2
FG02	55.8	40.2
FG03	61.4	19.6
FG04	58.5	24.2
FG05	56.4	22.8
FG06	60.5	35.8
FG07	60.3	26.2
FG08	57.2	16.2
FG09	59.8	13.1
FG10	55.7	23.7
FG11	57.0	18.3
FG12	62.5	20.3

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
FG13	63.0	25.5
FG14	61.4	26.8
All other dwellings	57.5	19.2

**(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	no common facility	no common facility	no common facility	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	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
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Central hot water system (No. 2)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 7

## 2. Commitments for Residential flat buildings - Building E

### (a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 6 but <= 7.5 L/min)	4 star	4 star	4 star	no	-	4 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	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/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
E101, E106, E110, E206, E210, E306, E310, E407, EG04, EG08, EG09	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
E103, E105, E107, E108, E109, E203, E205, E207, E208, E209, E211, E303, E305, E307, E308, E309, E311, EG01, EG02, EG03, EG05, EG06, EG07, EG10	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	2 (dedicated)	1 (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
All other dwellings	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	1-phase airconditioning 4.5 Star (zoned)	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	4 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/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
E101	60.2	57.4
E102	59.8	22.6
E103	28.3	60.4
E104	58.8	21.8
E105	38.4	21.8
E106	57.4	30.2
E107	29.2	58.4
E108	34.7	35.8
E109	32.6	56.0
E110	39.6	31.0
E111	39.4	41.0
E112	60.9	20.7
E113	61.5	23.0
E201	58.1	30.9
E202	58.6	28.0

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
E203	62.2	56.0
E204	57.8	20.5
E205	28.7	59.8
E206	58.2	30.1
E207	38.9	21.6
E208	35.2	35.2
E209	29.7	57.4
E210	40.3	30.6
E211	33.1	59.4
E212	48.1	20.7
E213	33.2	39.9
E214	59.1	22.9
E301	49.7	48.4
E302	59.7	25.8
E303	27.2	58.6
E304	61.8	21.8
E305	40.6	45.6
E306	58.9	30.7
E307	44.4	21.7
E308	49.1	35.8
E309	39.3	44.1
E310	41.3	30.2
E311	47.3	53.9
E312	62.8	22.1
E313	38.0	40.1
E314	56.7	20.2
E401	61.0	47.0

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
E402	62.2	29.6
E403	61.3	34.6
E404	62.0	30.8
E405	61.2	53.4
E406	57.5	45.0
E407	53.6	58.8
E408	59.1	48.6
E409	49.5	54.8
E410	59.8	31.1
EG01	62.9	20.8
EG02	58.5	25.7
EG03	48.1	61.4
EG04	57.0	30.8
EG05	62.9	21.8
EG06	61.0	28.7
EG07	50.7	63.0
EG08	54.7	29.0
EG09	46.0	62.7
EG10	59.4	21.6
EG11	61.1	47.0
All other dwellings	62.2	16.6

**(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	no common facility	no common facility	no common facility	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	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
Lift car (No.2)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R1.0 (~38 mm)
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 7



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

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	no common facility	no common facility	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	1797.6	To collect run-off from at least: - 251.66 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 0.0 square metres of garden/lawn area in the development - 0.0 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 647.91 square metres of common landscaped area on the site - car washing in 2 car washing bays on the site

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

Common area	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 (No. 1)	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	fluorescent	time clock and motion sensors	No
Lift motor room (No. 1)	ventilation exhaust only	none ie. continuous	fluorescent	manual on / manual off	No
Garbage room (No. 1)	ventilation exhaust only	-	fluorescent	motion sensors	No
Ground floor lobby type (No. 1)	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	No
Hallway/lobby type (No. 1)	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	No

## 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).