



Integral Group Proposed Residential Development

Midtown Precinct - Stage 2
Building C3
To be built at **Epping Road, Macquarie Park NSW 2113**

Issue	File Ref	Description	Author	Date
A	21-1703	NatHERS and BASIX Assessment	HE/FM/DO/JJ	30/06/21
-	-	NOT A VALID CERTIFICATE: Default 6 star NatHERS average results	HE	14/07/21
		NOT A VALID CERTIFICATE: Reduction of energy inclusions	HE	16/07/21

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Integral Group. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our Client's instructions and preferred building inclusions.



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Accreditation Number: HERA10033

Prepared For:

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Introduction

Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at Midtown Precinct – Lot C3.

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.4 thermal comfort simulation software. The report is based on the architectural drawings provided by Integral Group. For further details refer to the individual BASIX Certificate(s) and Efficient Living's inclusions summary respectively.

This report is based on the following plans prepared by Fox Johnston Architects: revision P3:

Subset ID and Name	Drawing No.	Drawing Title	Subset ID and Name	Drawing No.	Drawing Title
General			Adaptable Apartments		
	A-001-001	Title Sheet		A-115-001	Adaptable Apartments
Site Plans			GA Elevation		
	A-100-003	Site Plan		A-210-001	North Elevation
GA Plans				A-210-001	West Elevation
	A-110-000	Ground Level		A-210-002	South Elevation
	A-110-001	Level 01		A-210-003	East Elevation
	A-110-002	Level 02	GA Sections		
	A-110-003	Level 03		A-310-001	Section DD
	A-110-004	Level 04		A-310-002	Section EE
	A-110-005	Level 05			
	A-110-006	Level 06			
	A-110-007	Level 07			
	A-110-008	Level 08			
	A-110-009	Level 09			
	A-110-010	Level 10			
	A-110-011	Level 11			
	A-110-012	Level 12			
	A-110-013	Level 13			
	A-110-014	Level 14			
200710 stack overlays					
	A-110-014	Level 14			
	A-110-015	Level 15			
	A-110-016	Level 16			
	A-110-017	Roof Plan			
	A-110-B01	Basement 1			
	A-110-B02	Basement 2			
	A-110-B03	Basement 3			

Analysis

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

BASIX requires a minimum target of 40% for the water section, a pass or fail for the thermal comfort section, and a minimum required target of 25% for the energy section.

Water

The proposed Development has achieved the BASIX Water Target of 40%.

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

The size of the rainwater tank and number of connections may have a significant impact on your water score as does the area of gardens and lawns whether or not low water plant species are incorporated.

Thermal Comfort

Thermal Comfort targets are set by the Department of Planning in the form of heating and cooling caps. The buildings thermal physics are measured using BERS Pro Plus V4.4 Thermal Comfort Simulation Software. This calculates the expected level of energy required to heat and cool each dwelling per annum, expressed in megajoules per square metre of floor area (MJ/m²).

Each unit has individual heating and cooling caps applied. Accompanying these individual caps are average heating and cooling caps applied to the whole development. The average caps are lower, or harder to comply with than the individual unit caps.

Energy

The proposed development has achieved the Energy target of 25% to pass this section.

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

Inclusions Summary

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

Thermal Comfort Scores

Average heating loads are 53% below allowable BASIX targets

Average cooling loads are 41% below allowable BASIX targets

Glazing Doors/Windows

Glazed windows and doors:

Base file	Aluminium framed single low-e: A – awning windows + hinged glazed doors U-Value: 5.4 (equal to or lower than) SHGC: 0.49 (±10%)
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	B – sliding doors/windows + fixed glazing + louvre windows U-Value: 5.4 (equal to or lower than) SHGC: 0.58 (±10%)
Upgrade 1	Aluminium framed low-e, double glazing: A – awning windows + hinged glazed doors U-Value: 4.1 (equal to or lower than) SHGC: 0.47 (±10%) B – sliding doors/windows + fixed glazing + louvre windows U-Value: 4.1 (equal to or lower than) SHGC: 0.52 (±10%)
Upgrade 2	Aluminium framed low-e, double performance glazing: A – awning windows + hinged glazed doors U-Value: 2.9 (equal to or lower than) SHGC: 0.44 (±10%) B – sliding doors/windows + fixed glazing + louvre windows U-Value: 2.9 (equal to or lower than) SHGC: 0.51 (±10%)

Given values are AFRC total window system values (glass and frame)

Roof and ceiling

Concrete roof, waterproof membrane

Plasterboard ceiling with R2.0 insulation (insulation only value) where balconies are above

Plasterboard ceiling with R3.0 insulation (insulation only value) to soffit of concrete where roof is over

Plasterboard ceiling, no insulation where neighbouring units are above

External Colour

Light (SA < 0.475)

Ceiling Penetrations

Sealed LED downlights at a maximum of one every 2.5m². Once lighting plan has been developed NatHERS certificate can be updated to improve specification.

External Wall

75mm Hebel wall with R2.0 insulation (insulation only value) to balcony not located on main façade

100mm Tilt up/off form/In Situ concrete with metal studs and plasterboard lined with R2.0 insulation (insulation only value)

Minimum 150mm structural concrete with metal studs and plasterboard lined with R1.2 insulation (insulation only value)

External Colour

colour modelled

Inter-tenancy walls

75mm Hebel Power Panel to walls adjacent to neighbours, no insulation required for thermal comfort

75mm Hebel Power Panel to walls adjacent to hallways, no insulation required for thermal comfort

Minimum 150mm concrete with furring channel and plasterboard lining to all walls adjacent to lift shafts and fire stairs.
No insulation required

Walls within dwellings

Plasterboard on studs – no insulation

Floors

Concrete with a minimum R1.5 insulation (insulation only value) required to units with basement below

Concrete with a minimum R1.5 insulation (insulation only value) required where part open subfloor is below

Concrete between levels, no insulation required

Floor coverings

Default floor coverings

External Shading

Shading as per stamped documentation

BASIX water inclusions

Score 41/40 target

Fixtures within units

Showerheads: Mid flow (>6L but ≤7.5L/min)

Toilets: 4.0 star

Kitchen taps: 6.0 star

Bathroom vanity taps: 6.0 star

Fixtures within common areas

Toilets: 4.0 star

Basin taps: 6.0 star

Appliances within units

Dishwashers: 3.5 stars

Alternative water supply

Rainwater tank 38,000L

Collecting from 350m²

Connected to irrigation of landscaping and 1 car wash bays

Fire sprinkler test water

Fire sprinkler test water must be contained in a closed loop system

Landscaping

400m² required to be low water

BASIX Energy Inclusions

Score 25/25 target

Hot water system

Electric heat pump air sourced with R0.75 (~32mm) insulation to ring main and supply risers

Lift motors

All lifts to have gearless traction with VVVF motor and regenerative drive

Appliances and other efficiency measures within units

Market: Induction cooktop & electric oven

Indoor clothes lines

Dishwashers: 3.5 star

Clothes dryers: 2 star

Heating and cooling within units

All units to have individual, single phase, reverse cycle air conditioning to living areas, and at least 1 bedroom

A minimum efficiency of 2.5 – 3.0 COP is required for cooling; and

A minimum efficiency of 3.0 – 3.5 COP is required for heating

Artificial lighting within units

All light fittings within each room are to have sealed LED fixtures installed

Ventilation within units

Bathroom: individual fan, ducted to roof or façade – interlocked to light

Laundry: individual fan, ducted to roof or façade – manual on/off switch (will be interlocked to dryer)

Kitchen range hood: Individual fan, ducted to roof or façade – manual on/off switch

Ventilation to common areas

Car park area - supply and exhaust air with a carbon monoxide monitor & VSD fan

Lifts – no mechanical ventilation

Switch room – ventilation supply only, running continuously

Garbage/waste rooms – ventilation exhaust only, continuous
Community room – Air conditioning system, time clock and BMS controlled
Comms room – ventilation exhaust only, interlocked to light
Fire Control Room – no mechanical ventilation
Bulky waste storage room – ventilation exhaust only, continuous
Fire pump room – no mechanical ventilation
Cold water pump room – ventilation exhaust only, thermostatically controlled
Storage rooms – no mechanical ventilation
WC – ventilation exhaust only, time clock and BMS controlled
Lobbies – no mechanical ventilation
Hallways – no mechanical ventilation

Artificial lighting to common areas

Car park area – Light emitting diodes (LEDs) with zoned switching and motion sensors
Lifts – Light emitting diodes (LEDs) connected to lift call button
Switch room – Light emitting diodes (LEDs) with motion sensor
Garbage/waste rooms – Light emitting diodes (LEDs) with motion sensor
Community room – Light emitting diodes (LEDs) with manual on / manual off switch
Comms room – Light emitting diodes (LEDs) with manual on / manual off switch
Fire Control Room – Light emitting diodes (LEDs) with manual on / manual off switch
Bulky waste storage room – Light emitting diodes (LEDs) with manual on / manual off switch
Fire pump room – Light emitting diodes (LEDs) with manual on / manual off switch
Cold water pump room – Light emitting diodes (LEDs) with manual on / manual off switch
Storage rooms – Light emitting diodes (LEDs) with motion sensor
WC – Light emitting diodes (LEDs) with motion sensor
Lobbies – Light emitting diodes (LEDs) with time clock and motion sensors
Hallways – Light emitting diodes (LEDs) with time clock and motion sensors

Alternative Energy

43kW photovoltaic system

BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 1207739M_03

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 10/09/2020 published by the Department. This document is available at www.basix.nsw.gov.au

Secretary

Date of issue: Friday, 16 July 2021

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



Planning,
Industry &
Environment

Project summary

Project name	Midtown C3 - Macquarie Park_03
Street address	n/a Street Macquarie Park 2113
Local Government Area	Ryde City Council
Plan type and plan number	deposited 1262209
Lot no.	22
Section no.	-
No. of residential flat buildings	2
No. of units in residential flat buildings	168
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Project score

Water	✓ 41	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 25	Target 25

Certificate Prepared by

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82116346082

Description of project

Project address

Project name	Midtown C3 - Macquarie Park_03
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Project type

No. of residential flat buildings	2
No. of units in residential flat buildings	168
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details

Site area (m²)	7508
Roof area (m²)	1096
Non-residential floor area (m²)	997.32
Residential car spaces	154
Non-residential car spaces	23




Common area landscape

Common area lawn (m²)	170.0
Common area garden (m²)	662.0
Area of indigenous or low water use species (m²)	400.0

Assessor details

Assessor number	HERA10033
Certificate number	0006184460
Climate zone	56
Ceiling fan in at least one bedroom	Yes
Ceiling fan in at least one living room or other conditioned area	Yes

Project score

Water	 41	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 25	Target 25

Description of project

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

Residential flat buildings - C3.B, 65 dwellings, 17 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
109	2	88.8	0.0	0.0	0.0
210	3	95.2	0.0	0.0	0.0
310	1	51.8	0.0	0.0	0.0
410	1	53.9	0.0	0.0	0.0
509	2	77.3	0.0	0.0	0.0
610	1	51.9	0.0	0.0	0.0
808	2	81.6	0.0	0.0	0.0
908	2	81.6	0.0	0.0	0.0
1007	2	81.6	0.0	0.0	0.0
1108	1	53.1	0.0	0.0	0.0
1209	2	77.3	0.0	0.0	0.0
1311	2	77.3	0.0	0.0	0.0
1411	2	77.3	16.3	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
110	3	95.2	0.0	0.0	0.0
211	3	97.1	0.0	0.0	0.0
311	2	77.3	0.0	0.0	0.0
411	2	77.3	0.0	0.0	0.0
510	1	51.9	0.0	0.0	0.0
707	2	81.6	0.0	0.0	0.0
809	1	50.3	0.0	0.0	0.0
909	1	50.0	0.0	0.0	0.0
1008	1	53.1	0.0	0.0	0.0
1109	2	77.3	0.0	0.0	0.0
1210	1	51.9	0.0	0.0	0.0
1312	1	51.9	0.0	0.0	0.0
1412	1	51.9	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
111	3	97.1	0.0	0.0	0.0
212	2	78.4	0.0	0.0	0.0
312	1	56.4	0.0	0.0	0.0
412	1	51.9	0.0	0.0	0.0
607	2	81.6	0.0	0.0	0.0
708	1	52.5	0.0	0.0	0.0
810	1	50.3	0.0	0.0	0.0
910	1	50.0	0.0	0.0	0.0
1009	2	77.3	0.0	0.0	0.0
1110	1	51.9	0.0	0.0	0.0
1308	2	81.6	0.0	0.0	0.0
1408	1	50.6	0.0	0.0	0.0
1505	3	95.2	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
112	2	78.4	0.0	0.0	0.0
308	2	81.6	0.0	0.0	0.0
408	2	81.6	0.0	0.0	0.0
507	2	81.6	0.0	0.0	0.0
608	1	53.1	0.0	0.0	0.0
709	2	77.3	0.0	0.0	0.0
811	2	77.3	0.0	0.0	0.0
911	2	77.3	0.0	0.0	0.0
1010	1	51.9	0.0	0.0	0.0
1207	2	81.6	0.0	0.0	0.0
1309	1	50.6	0.0	0.0	0.0
1409	2	77.3	0.0	0.0	0.0
1506	2	77.3	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
209	2	88.8	0.0	0.0	0.0
309	1	52.1	0.0	0.0	0.0
409	1	50.7	0.0	0.0	0.0
508	1	53.1	0.0	0.0	0.0
609	2	77.3	0.0	0.0	0.0
710	1	51.9	0.0	0.0	0.0
812	1	51.9	0.0	0.0	0.0
912	1	51.9	0.0	0.0	0.0
1107	2	81.6	0.0	0.0	0.0
1208	1	52.7	0.0	0.0	0.0
1310	1	50.6	0.0	0.0	0.0
1410	1	51.9	0.0	0.0	0.0
1507	1	51.9	0.0	0.0	0.0

Residential flat buildings - C3.A, 103 dwellings, 18 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
101	3	103.4	0.0	0.0	0.0
106	1	68.9	0.0	0.0	0.0
203	2	77.7	0.0	0.0	0.0
208	1	44.1	0.0	0.0	0.0
305	3	92.8	0.0	0.0	0.0
403	1	52.8	0.0	0.0	0.0
501	3	93.9	0.0	0.0	0.0
506	2	71.2	0.0	0.0	0.0
605	1	64.6	0.0	0.0	0.0
704	3	92.8	0.0	0.0	0.0
803	1	50.9	0.0	0.0	0.0
901	3	93.9	0.0	0.0	0.0
906	1	64.6	0.0	0.0	0.0
1004	3	92.8	0.0	0.0	0.0
1103	1	53.1	0.0	0.0	0.0
1202	1	52.7	0.0	0.0	0.0
1301	3	93.9	0.0	0.0	0.0
1306	1	81.6	0.0	0.0	0.0
1404	1	52.3	0.0	0.0	0.0
1502	3	95.2	0.0	0.0	0.0
1603	3	180.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
102	2	77.7	0.0	0.0	0.0
107	1	51.0	0.0	0.0	0.0
204	3	100.8	0.0	0.0	0.0
301	3	93.9	0.0	0.0	0.0
306	1	64.6	0.0	0.0	0.0
404	1	52.3	0.0	0.0	0.0
502	1	53.1	0.0	0.0	0.0
601	3	93.9	0.0	0.0	0.0
606	2	71.2	0.0	0.0	0.0
705	1	64.6	0.0	0.0	0.0
804	1	52.3	0.0	0.0	0.0
902	1	50.6	0.0	0.0	0.0
907	2	71.3	0.0	0.0	0.0
1005	1	64.6	0.0	0.0	0.0
1104	3	92.8	0.0	0.0	0.0
1203	1	52.5	0.0	0.0	0.0
1302	1	50.9	0.0	0.0	0.0
1307	2	71.3	0.0	0.0	0.0
1405	1	81.6	0.0	0.0	0.0
1503	1	64.6	0.0	0.0	0.0
1604	1	64.6	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
103	2	77.7	0.0	0.0	0.0
108	1	44.1	0.0	0.0	0.0
205	2	90.8	0.0	0.0	0.0
302	1	51.2	0.0	0.0	0.0
307	2	71.2	0.0	0.0	0.0
405	3	92.8	0.0	0.0	0.0
503	1	53.1	0.0	0.0	0.0
602	1	53.1	0.0	0.0	0.0
701	3	93.9	0.0	0.0	0.0
706	2	71.3	0.0	0.0	0.0
805	3	92.8	0.0	0.0	0.0
903	1	50.9	0.0	0.0	0.0
1001	3	93.9	0.0	0.0	0.0
1006	2	71.3	0.0	0.0	0.0
1105	1	64.6	0.0	0.0	0.0
1204	3	92.8	0.0	0.0	0.0
1303	1	50.9	0.0	0.0	0.0
1401	3	93.9	0.0	0.0	0.0
1406	2	71.3	0.0	0.0	0.0
1504	2	71.3	0.0	0.0	0.0
1605	2	71.3	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
104	3	100.7	0.0	0.0	0.0
201	3	103.4	0.0	0.0	0.0
206	1	68.9	0.0	0.0	0.0
303	1	52.8	0.0	0.0	0.0
401	3	93.9	0.0	0.0	0.0
406	1	64.6	0.0	0.0	0.0
504	3	92.8	0.0	0.0	0.0
603	1	53.1	0.0	0.0	0.0
702	1	52.7	0.0	0.0	0.0
801	3	93.9	0.0	0.0	0.0
806	1	64.6	0.0	0.0	0.0
904	1	52.3	0.0	0.0	0.0
1002	1	53.1	0.0	0.0	0.0
1101	3	93.9	0.0	0.0	0.0
1106	2	71.3	0.0	0.0	0.0
1205	1	64.6	0.0	0.0	0.0
1304	1	52.3	0.0	0.0	0.0
1402	1	50.6	0.0	0.0	0.0
1407	2	81.6	0.0	0.0	0.0
1601	3	93.9	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
105	2	90.8	0.0	0.0	0.0
202	2	77.7	0.0	0.0	0.0
207	1	51.0	0.0	0.0	0.0
304	1	52.3	0.0	0.0	0.0
402	1	50.6	0.0	0.0	0.0
407	2	71.2	0.0	0.0	0.0
505	1	64.6	0.0	0.0	0.0
604	3	92.8	0.0	0.0	0.0
703	1	53.1	0.0	0.0	0.0
802	1	50.9	0.0	0.0	0.0
807	2	71.3	0.0	0.0	0.0
905	3	92.8	0.0	0.0	0.0
1003	1	53.1	0.0	0.0	0.0
1102	1	53.1	0.0	0.0	0.0
1201	3	93.9	0.0	0.0	0.0
1206	2	71.3	0.0	0.0	0.0
1305	3	92.8	0.0	0.0	0.0
1403	1	50.9	0.0	0.0	0.0
1501	3	93.9	0.0	0.0	0.0
1602	3	95.2	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 - C3.B

Common area	Floor area (m ²)
Lift car (No.3)	-

Common area	Floor area (m ²)
Lift car (No.4)	-

Common areas of unit building - C3.A

Common area	Floor area (m ²)
Lift car (No.1)	-
WC	3.88

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

Common area	Floor area (m ²)
Community room	47.0

Common areas of the development (non-building specific)

Common area	Floor area (m ²)
Car park area	6007.0
Comms room	21.0
Fire pump room	35.0
Lobbies	70.0

Common area	Floor area (m ²)
Switch room	27.6
Fire Control Room	7.6
Cold water pump room	21.0
Hallways	1354.0

Common area	Floor area (m ²)
Garbage/waste rooms	196.0
Bulky waste storage room	30.0
Storage rooms	49.0

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - C3.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 - C3.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 - C3.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	4 star (> 6 but <= 7.5 L/min)	4 star	6 star	6 star	no	-	3.5 star	-	-	-	-	-	-	-

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

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



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

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, 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
110, 111, 210, 211, 1505	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
109, 112, 209, 212, 308, 311, 408, 411, 507, 509, 607, 609, 707, 709, 808, 811, 908, 911, 1007, 1009, 1107, 1109, 1207, 1209, 1308, 1311, 1409, 1411, 1506	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1	1	yes	yes	yes	yes	0	-

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	-	-	-	-	induction cooktop & electric oven	-	no	3.5 star	-	2 star	yes	no

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

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(i) The applicant must show on the plans accompanying the development application for the proposed development, the locations of ceiling fans set out in the Assessor Certificate.			
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.			

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
All dwellings	30.0	26.0

(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	4 star	6 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 2)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓

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

Common area	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.3)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No.4)	-	-	light-emitting diode	connected to lift call button	Yes

Central energy systems	Type	Specification
Lift (No. 3)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 19
Lift (No. 4)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 19

2. Commitments for Residential flat buildings - C3.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	4 star (> 6 but <= 7.5 L/min)	4 star	6 star	6 star	no	-	3.5 star	-	-	-	-	-	-	-

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

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

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



	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	interlocked to light	individual fan, 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
102, 103, 105, 202, 203, 205, 307, 407, 506, 606, 706, 807, 907, 1006, 1106, 1206, 1307, 1406, 1407, 1504, 1605	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	2	1	yes	yes	yes	yes	0	-

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
101, 104, 201, 204, 301, 305, 401, 405, 501, 504, 601, 604, 701, 704, 801, 805, 901, 905, 1001, 1004, 1101, 1104, 1201, 1204, 1301, 1305, 1401, 1501, 1502, 1601, 1602, 1603	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	3	1	yes	yes	yes	yes	0	-
All other dwellings	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 2.5 - 3.0	1-phase airconditioning EER 3.0 - 3.5	1-phase airconditioning EER 3.0 - 3.5	1	1	yes	yes	yes	yes	0	-

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	-	-	-	-	induction cooktop & electric oven	-	no	3.5 star	-	2 star	yes	no

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

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(i) The applicant must show on the plans accompanying the development application for the proposed development, the locations of ceiling fans set out in the Assessor Certificate.			
(j) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), the locations of ceiling fans set out in the Assessor Certificate.			

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
All dwellings	30.0	26.0

(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	4 star	6 star	no common laundry facility

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

(ii) Energy	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) If, in carrying out the development, the applicant installs a ventilation system to service a common area specified in the table below, then that ventilation system must be of the type specified for that common area, and must meet the efficiency measure specified.		✓	✓

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No.2)	-	-	light-emitting diode	connected to lift call button	Yes
Community room	air conditioning system	time clock or BMS controlled	light-emitting diode	manual on / manual off	Yes
WC	ventilation exhaust only	time clock or BMS controlled	light-emitting diode	motion sensors	Yes

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 20
Lift (No. 2)	gearless traction with V V V F motor and regenerative drive	Number of levels (including basement): 20

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	4 star	6 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	38000.0	To collect run-off from at least: - 350.0 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 820.0 square metres of common landscaped area on the site - car washing in 1 car washing bays on the site

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 3)	-	So that fire sprinkler test water is contained within the fire sprinkler system for re-use, rather than disposed.	-

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	zoned switching with motion sensor	Yes
Switch room	ventilation exhaust only	none ie. continuous	light-emitting diode	motion sensors	Yes
Garbage/waste rooms	ventilation exhaust only	-	light-emitting diode	motion sensors	Yes
Comms room	ventilation exhaust only	interlocked to light	light-emitting diode	manual on / manual off	Yes
Fire Control Room	no mechanical ventilation	-	light-emitting diode	manual on / manual off	Yes
Bulky waste storage room	ventilation exhaust only	none ie. continuous	light-emitting diode	manual on / manual off	Yes
Fire pump room	no mechanical ventilation	-	light-emitting diode	manual on / manual off	Yes
Cold water pump room	ventilation exhaust only	thermostatically controlled	light-emitting diode	manual on / manual off	Yes
Storage rooms	no mechanical ventilation	-	light-emitting diode	motion sensors	Yes
Lobbies	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	Yes

	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
Hallways	no mechanical ventilation	-	light-emitting diode	time clock and motion sensors	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	electric heat pump - air sourced	Piping insulation (ringmain & supply risers): (b) Piping internal to building: R0.75 (~32 mm)
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 43.0 peak kW
Other	Building management system installed?: yes Active power factor correction installed?: yes	-

Notes

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

Legend

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