



### Hyecorp Property Group Proposed Residential Development

To be built at **26 Crabbes Avenue, North Willoughby NSW 2068**

Issue	File Ref	Description	Author	Date
A	19-0369	NatHERS and BASIX Assessment	NM	27/06/19
B	20-1264	NatHERS and BASIX Update	FM/PV/MP	15/12/20

This report has been prepared by Efficient Living Pty Ltd on behalf of our client Hyecorp Property 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.



**Report Contact:** Niall Madden  
Email: [niall@efficientliving.com.au](mailto:niall@efficientliving.com.au)

**License Holder:** Tracey Cools  
Accreditation Number: VIC/BDV/12/1473

---

**Prepared For:**

Hyecorp Property Group  
Troy Kassabian  
[troy.kassabian@hyecorp.com.au](mailto:troy.kassabian@hyecorp.com.au)

Level 1, 5-7 Havilah Street  
Chatswood NSW 2067  
02 9967 9910

---

**Introduction**

Efficient Living has investigated the estimated thermal comfort, water and energy usage of the proposed development to be built at 26 Crabbes Avenue, North Willoughby.

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.3 thermal comfort simulation software. The report is based on the architectural drawings provided by Hyecorp Property 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 Drawings by Amglen Pty Ltd Dated 13/05/19 Rev[P1] DA2.01, DA2.03, DA2.04-DA2.09, Dated 19/02/19 Rev[P1] DA2.02, Dated 22/05/19 DA3.01-DA3.06, Dated 14/06/19 Rev [A] DA4.01-DA4.04

---

**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 45% 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 V4.3 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/m<sup>2</sup>).

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 45% 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 40% below allowable BASIX targets

Average cooling loads are 32% below allowable BASIX targets

### Glazing Doors/Windows

**Group A** – awning + bifold + casement windows + hinged glazed doors

U-value: 4.80 (equal to or lower than) SHGC: 0.51 (±10%)

**Group B** – sliding doors/windows + fixed glazing + louvred windows

U-value: 4.80 (equal to or lower than) SHGC: 0.59 (±10%)

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

**Note:** Openability modelled as per BASIX Thermal Protocol – 4.14.2 and NatHERS Technical Note 1.2 – 10.11 with regards to restricted openings

### Roof

Concrete roof, no insulation

### External Colour

Light (SA < 0.75)

### Ceiling

Plasterboard ceiling with R2.5 insulation (insulation only value) to soffit of concrete where roof is over

Plasterboard ceiling with R4.0 insulation (insulation only value) to soffit of concrete where roof is over **as per Thermal Comfort Results Table**

Plasterboard ceiling, no insulation where neighbouring units are above

### Ceiling Penetrations

Sealed LED downlights at a maximum of one every 2.5m<sup>2</sup>

### External Wall

Brick veneer with R2.0 insulation (insulation only value)

Lightweight cladding/Colourback Glass/Spandrel on framed walls with R2.0 insulation (insulation only value) as per stamped documentation

Sloped roof wall construction to level 3 of Building C with R2.0 insulation (insulation only value)

Brick veneer with R2.5 insulation (insulation only value) **as per Thermal Comfort Results Table**

---

**External Colour**

Default colour modelled

---

**Inter-tenancy walls**

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

75mm Hebel Power Panel to walls adjacent to naturally ventilated hallways with a minimum R1.7 insulation (insulation only value)

Minimum 150mm concrete with furring channel and plasterboard lining to all walls adjacent to lift shafts and fire stairs. R1.7 insulation (insulation only value)

Insulation to Hallways/Lift Shaft/Stair Core increased to R2.2 as per Thermal Comfort Results Table

---

**Walls within dwellings**

Plasterboard on studs – no insulation

---

**Floors**

Concrete with a minimum R1.2 insulation (insulation only value) required to units with Garage below

Concrete with a minimum R1.2 where open subfloor is below

Concrete between levels, no insulation required

---

**Floor coverings**

Carpet to bedrooms/study, tiles elsewhere

---

**External Shading**

Shading as per stamped documentation

---

**BASIX water inclusions**

Score 40/40

---

**Fixtures within units**

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

Toilets: 4.0 star

Kitchen taps: 5.0 star

Bathroom vanity taps: 5.0 star

---

**Fixtures within common areas**

Toilets: 4.0 star

Taps: 5.0 star

---

---

**Appliances within units**

Dishwashers: 4.0 stars

---

**Central rainwater storage**

Tank size: 8,000L

Collecting from 400m<sup>2</sup> roof area

Connected to outdoor tap for irrigation of landscaping common and private

---

**Fire sprinkler test water**

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

---

**Common area swimming pools and spas**

Swimming pool 70kL Maximum

---

**BASIX Energy Inclusions**

Score 45/45

---

**Hot water system**

Electric Heat Pump – Gas Boosted with R1.0 (~38mm) insulation to ring main and supply risers

---

**Lift motors**

All lifts to have gearless traction with VVVF motor

---

**Appliances and other efficiency measures within units**

Gas cooktop & gas oven

Dishwashers: 4.0 star

Refrigerators: 4.0 star

Clothes dryers: 2.5 star

Well ventilated fridge space

---

**Heating and cooling within units**

All units to have air conditioning ducting only

---

**Artificial lighting within units**

All light fittings within each room are to have 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

Kitchen range hood: Individual fan, not ducted – manual on/off switch

---

#### **Ventilation to common areas**

Car park area – Supply and exhaust air with a carbon monoxide monitor & VSD fan

Garbage rooms – Exhaust air, running continuously

Plant, Service and Storage – Supply only, interlocked to light

Indoor pool area – Supply and exhaust air – BMS controlled

Naturally Ventilated Ground floor Lobbies and Hallways – Naturally ventilated

Mechanically Ventilated Ground floor Lobbies and Hallways – Ventillation Supply only – BMS controlled

Please note: Any air-conditioned common areas that are not exclusive to residents must comply with NCC Section J glazing and insulation requirements. Independent reports should be requested prior to CC if relevant

---

#### **Artificial lighting to common areas**

Car park area – Light emitting diodes (LEDs) with zoned switching and motion sensors

Lifts – LED lights connected to lift call button

Garbage rooms – Light emitting diodes (LEDs) with motion sensor

Plant/storage – Light emitting diodes (LEDs) with manual on / manual off switch

Ground floor lobby – Light emitting diodes (LEDs) with motion sensors

Hallways – Light emitting diodes (LEDs) with zoned switching and motion sensors

Indoor pool area – Light emitting diodes (LEDs) with time clock

---

#### **Alternative Energy**

25 kW Solar PV System

---

#### **Swimming Pool**

Electric Heat pump

Heat pump controlled by a timer

# Thermal Comfort Results

Proposed Residential Development

26 Crabbes Avenue,  
North Willoughby

Issued in accordance with BASIX Thermal Comfort Simulation Method

Certificate # 0005509100							Accreditation # HERA10033
Thermal performance specifications							
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
A101	3	106	0	37	11.8	6.2	None
A102	2	90	0	16.2	16.3	7.4	None
A103	1	60	0	11.1	17.6	7.8	None
A104	1	60	0	9.5	17.8	7.9	None
A105	2	95	0	35.4	17.5	5.9	None
A201	3	100	0	34.4	17	5.9	None
A202	3	106	0	24.6	15.1	6.9	None
A203	2	90	0	16.4	13.1	7.8	None
A204	1	60	0	9.7	27.2	7.2	None
A205	1	60	0	7.4	27.7	7.3	None
A206	2	99	0	35.8	17	5.9	None
A301	3	108	0	36.2	16.8	5.9	None
A302	3	100	0	32.4	21.6	5.8	None
A303	1	59	0	4.2	27.7	7.5	None
A304	3	117	0	13.2	13.5	7.9	None
A305	3	126	0	11.6	12.3	8.2	None
A306	2	102.8	0	22.2	16.1	7.1	None
A307	3	100	0	30.5	23.1	5.9	None
A308	3	106	0	16.1	20.4	7.2	None
A309	2	90	0	11.3	13.5	8.1	None
A310	1	60	0	5.8	27.5	7.4	None
A311	1	60	0	8.3	25	7.4	None
A312	2	99	0	26.2	12.2	7.1	None
A401	3	108	0	27.3	18.4	6.4	None
A402	3	100	0	19.3	21.9	6.9	None
A403	1	59	0	7.2	28.1	7.3	None
A404	3	117	0	13.7	13.6	7.9	None
A405	3	126	0	11.7	12.1	8.2	None
A406	2	103	0	19.7	18.6	7.1	None
A407	3	100	0	29.8	23.1	5.9	None
A408	3	106.1	0	16.1	21.8	7.1	None

## Thermal Comfort Results

Proposed Residential Development

26 Crabbes Avenue,  
North Willoughby

Issued in accordance with BASIX Thermal Comfort Simulation Method

Certificate # 0005509100							Accreditation # HERA10033
Thermal performance specifications							
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
A409	2	90	0	11.1	13.4	8.2	None
A410	1	60	0	6.1	27.7	7.4	None
A411	1	60	0	4.5	28.1	7.4	None
A412	2	99	0	27	11.7	7	None
A501	3	108	0	32.4	13.6	6.4	None
A502	3	100	0	23.6	19.8	6.7	None
A503	1	59	0	9.3	25.3	7.4	None
A504	3	117	0	16.2	12.2	7.8	None
A505	3	126	0	13.5	10.2	8.2	None
A506	2	103	0	21.1	17.5	7.1	None
A507	3	100	0	35.1	19.5	5.8	None
A508	3	103	0	25.7	12	7.1	None
A509	2	109	0	14	15.3	7.8	None
A510	2	89	0	15.7	18.4	7.4	None
A511	2	100	0	40.4	9.9	6.1	None
A601	2	82	0	44.7	12.1	5.6	R2.5 insulation to external walls R2.2 Insulation to Hallway R4.0 Insulation to Ceiling
A602	3	117	0	34.5	13.2	6.3	None
A603	2	91	0	24.9	16	6.9	None
A604	3	121	0	43.6	18.3	5.3	None
A605	3	128	0	31.8	10.4	6.8	None
A606	2	87	0	36.8	12.8	6.2	None
B101	3	104	0	25.9	11.6	7.2	None
B102	3	104	0	17	20.7	7.1	None
B103	1	54	0	21.2	14	7.3	None
B104	3	122	0	20.5	8.7	7.8	None
B105	3	122	0	19.8	8	7.9	None
B106	1	54	0	17.2	11.8	7.8	None
B107	3	104	0	15	22.5	7.2	None
B108	3	104	0	17.5	15.5	7.4	None



## Thermal Comfort Results

Proposed Residential Development

26 Crabbes Avenue,  
North Willoughby

Issued in accordance with BASIX Thermal Comfort Simulation Method

Certificate # 0005509100							Accreditation # HERA10033
Thermal performance specifications							
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
B201	3	104	0	25.8	13.7	6.9	None
B202	3	104	0	17.5	20.6	7.1	None
B203	1	54	0	21.8	13.5	7.3	None
B204	3	122	0	18.9	10.6	7.8	None
B205	3	122	0	18.6	9.2	7.9	None
B206	1	54	0	18	12	7.7	None
B207	3	104	0	18.2	23.6	6.8	None
B208	3	104	0	20.8	18.4	6.9	None
B301	3	104	0	29.1	13.7	6.7	None
B302	3	104	0	25.1	20.5	6.4	None
B303	2	90	0	15.6	12.7	7.9	None
B304	1	73	0	42.8	16.5	5.4	None
B305	1	73	0	42	12.9	5.8	None
B306	2	90	0	14.8	11.3	7.9	None
B307	3	105	0	35.5	17.1	5.9	None
B401	3	112	0	40.1	25.6	5	None
B402	2	118.7	0	40.4	10.8	5.9	R4.0 Insulation to Ceiling
B403	2	116	0	37.4	11.7	6.2	None
B501	2	91	0	31	23.5	5.8	None
B502	2	94	0	28.5	21	6.2	None
B503	2	94	0	28.1	22.5	6.1	None
C101	3	117	0	33.5	20.7	5.8	None
C102	2	75	0	17.1	19.8	7.2	None
C103	2	75	0	20.3	19.9	6.9	None
C104	3	115	0	31.1	11.4	6.8	None
C105	3	115	0	28.7	15.7	6.6	None
C106	2	75	0	17.1	19.8	7.2	None
C107	2	75	0	19.9	20.3	6.9	None
C108	3	115	0	37.5	22.6	5.4	None
C201	3	117	0	35.3	15.2	6.1	None

## Thermal Comfort Results

Proposed Residential Development

26 Crabbes Avenue,  
North Willoughby

Issued in accordance with BASIX Thermal Comfort Simulation Method

Certificate # 0005509100							Accreditation # HERA10033
Thermal performance specifications							
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
C202	2	75	0	22.3	15.8	7.1	None
C203	2	75	0	25.4	15.8	6.9	None
C204	3	115	0	28.8	12.3	6.9	None
C205	3	115	0	26.4	16.7	6.7	None
C206	2	75	0	22.3	15.8	7.1	None
C207	2	75	0	21	20.1	6.9	None
C208	3	115	0	39	17.7	5.6	None
C301	1	86	0	42.3	25.5	4.9	None
C302	1	53	0	32.1	29.5	5.3	None
C303	1	53	0	40.8	20.3	5.4	None
C304	1	86	0	38.7	19.3	5.5	None
C305	1	86	0	35	24.9	5.4	None
C306	1	53	0	26.8	26.1	5.9	None
C307	1	53	0	35.8	28.9	5.1	None
C308	1	86	0	39.8	25.1	5.1	None
D201	2	90	0	23.9	22.2	6.4	None
D202	2	83	0	17.5	19.8	7.2	None
D203	2	83	0	19.8	19.9	6.9	None
D204	2	90	0	27.1	13.4	7.1	None
D205	2	92	0	17.5	9.5	7.6	None
D206	1	62	0	8.1	12.7	8.4	None
D207	1	42	0	20	18.7	7	None
D208	1	62	0	9.3	14	8.3	None
D209	2	92	0	25.9	13.6	6.9	None
D301	2	90	0	24.4	23.2	6.3	None
D302	3	120	0	20.6	13.6	7.4	None
D303	2	83	0	20.3	19.6	6.9	None
D304	2	92	0	9.8	17.1	7.9	None
D305	2	62	0	8.4	12.4	8.4	None
D306	1	42	0	20	18.7	7	None
D307	1	62	0	9.7	14	8.2	None

## Thermal Comfort Results

Proposed Residential Development

26 Crabbes Avenue,  
North Willoughby

Issued in accordance with BASIX Thermal Comfort Simulation Method

Certificate # 0005509100							Accreditation # HERA10033
Thermal performance specifications							
Unit number	Number of Bedrooms	Floor area (M <sup>2</sup> )		Predict. loads (MJ/M <sup>2</sup> /y)		Star Rating	Thermal Comfort Upgrades
		Con.	Uncon.	Heat	Cool (Sens & Lat)		
D308	2	92	0	26.2	13.5	6.9	None
D401	2	88.9	0	45.2	12.8	5.5	None
D402	2	69.3	0	37.1	15.5	5.9	None
D403	2	69.3	0	36.7	15.2	5.9	None
D404	2	88.9	0	26.7	17.1	6.7	None
D405	2	102.8	0	21.5	12.7	7.4	None
D406	3	119	0	20.3	16.6	7.2	None
D407	2	102.8	0	34.6	15.1	6.2	None

# Nationwide House Energy Rating Scheme\* — Class 2 summary



Certificate number: **0005509100**

Certificate Date: **15 Dec 2020**

★ Average Star rating: **6.8**

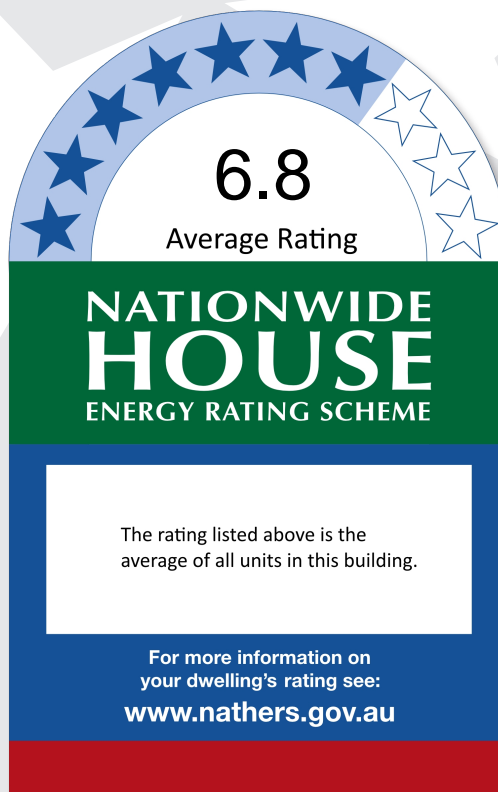
## Assessor details

Accreditation number: **VIC/BDAV/12/1473**  
Name: **Tracey Cools**  
Organisation: **Efficient Living**  
Email: **admin@efficientliving.com.au**  
Phone: **02 9970 6181**  
Declaration of interest: **None**  
Software: **BERS Pro v4.3.0.2d (3.13)**  
**BERS Pro v4.3.0.2f (3.13)**  
AAO: **BDAV, HERA**

## Dwelling details

Street: **26 Crabbes Avenue**  
Suburb: **Willoughby**  
State: **NSW**  
Postcode: **2068**

Scan to access this certificate online and confirm this is valid.



## Summary of all dwellings

### Certificate Details

Certificate number	Unit number	Heating load	Cooling load	Total load	Star Rating
0003972700-01	A101	37.0	11.8	48.8	6.2
0003972742-01	A102	16.2	16.3	32.5	7.4
0003972775-01	A103	11.1	17.6	28.7	7.8
0003972791-01	A104	9.5	17.8	27.4	7.9
0003972825-01	A105	35.4	17.5	52.9	5.9
0003972866-01	A201	34.4	17.0	51.4	5.9
0003972908-01	A202	24.6	15.1	39.7	6.9
0003972932-01	A203	16.4	13.1	29.4	7.8
0003972965-01	A204	9.6	27.4	37.0	7.2
0003972999-01	A205	7.4	27.7	35.1	7.3
0003973013-01	A206	35.8	17.0	52.8	5.9
0003973047-01	A301	47.2	15.9	63.2	5.2
0003973088-01	A302	32.4	21.6	54.0	5.8
0003973104-01	A303	4.2	27.7	31.9	7.5
0003973146-01	A304	13.2	13.5	26.7	7.9

# Nationwide House Energy Rating Scheme\* - Class 2 summary

Certificate number: **0005509100**

Certificate Date:

**15 Dec 2020**

★ Average Star rating: **6.8**



## Summary of all dwellings continued

### Certificate Details

Certificate number	Unit number	Heating load	Cooling load	Total load	Star Rating
0003973179-01	A305	11.6	12.3	23.9	8.2
0003973203-01	A306	22.2	16.1	38.3	7.1
0003973211-01	A307	30.5	23.1	53.6	5.9
0003973260-01	A308	16.1	20.4	36.6	7.2
0003973294-01	A309	11.3	13.5	24.8	8.1
0003972726-01	A310	6.4	27.5	33.9	7.4
0003972734-01	A311	8.3	25.0	33.4	7.4
0003972767-01	A312	26.2	12.2	38.5	7.1
0003972809-01	A401	27.3	18.4	45.7	6.4
0003972841-01	A402	19.3	21.9	41.3	6.9
0003972874-01	A403	7.2	28.1	35.3	7.3
0003972890-01	A404	13.7	13.6	27.3	7.9
0003972924-01	A405	11.7	12.1	23.8	8.2
0003972957-01	A406	19.7	17.3	37.0	7.2
0003972981-01	A407	29.8	23.1	52.8	5.9
0003973021-01	A408	16.1	21.8	37.9	7.1
0003973054-01	A409	11.1	13.4	24.5	8.2
0003973062-01	A410	6.1	27.7	33.9	7.4
0003973096-01	A411	4.5	28.1	32.6	7.4
0003973120-01	A412	27.0	11.7	38.7	7
0003973161-01	A501	32.4	13.6	46.0	6.4
0003973195-01	A502	23.6	19.8	43.3	6.7
0003973229-01	A503	9.3	25.3	34.6	7.4
0003973252-01	A504	16.2	12.2	28.4	7.8
0003973286-01	A505	13.5	10.2	23.7	8.2
0003972718-01	A506	21.1	17.5	38.6	7.1
0003972759-01	A507	35.1	19.5	54.6	5.8
0003972783-01	A508	25.7	12.0	37.6	7.1
0003972817-01	A509	14.0	15.3	29.4	7.8
0003972833-01	A510	15.7	18.4	34.1	7.4
0003972858-01	A511	40.4	9.9	50.3	6.1
0003972882-01	A601	44.7	12.1	56.9	5.6
0003972916-01	A602	34.5	13.2	47.8	6.3
0003972940-01	A603	24.9	16.0	40.9	6.9
0005506407	A604	43.6	18.3	61.9	5.3
0005506431	A605	31.8	10.4	42.2	6.8
0005506456	A606	36.8	12.8	49.6	6.2
0003973112-01	B101	25.9	11.6	37.5	7.2
0003973138-01	B102	17.0	20.7	37.7	7.1
0003973153-01	B103	21.2	14.0	35.2	7.3
0003973187-01	B104	20.5	8.7	29.2	7.8
0003973237-01	B105	19.8	8.0	27.8	7.9
0003973245-01	B106	17.2	11.8	29.0	7.8

## Nationwide House Energy Rating Scheme\* - Class 2 summary

Certificate number: **0005509100**

Certificate Date:

**15 Dec 2020**

★ Average Star rating: **6.8**



### Summary of all dwellings continued

#### Certificate Details

Certificate number	Unit number	Heating load	Cooling load	Total load	Star Rating
0003973278-01	B107	15.0	22.5	37.5	7.2
0003973310-01	B108	17.5	15.5	33.0	7.4
0003973351-01	B201	25.8	13.7	39.5	6.9
0003973385-01	B202	17.5	20.6	38.1	7.1
0003973419-01	B203	21.8	13.5	35.3	7.3
0003973443-01	B204	18.9	10.6	29.5	7.8
0003973450-01	B205	18.6	9.2	27.8	7.9
0003973484-01	B206	18.0	12.0	30.0	7.7
0003973518-01	B207	18.2	23.6	41.8	6.8
0003973567-01	B208	20.8	18.4	39.2	6.9
0003973583-01	B301	29.1	13.7	42.7	6.7
0003973617-01	B302	25.1	20.5	45.6	6.4
0003973641-01	B303	15.6	12.7	28.3	7.9
0003973666-01	B304	42.8	16.5	59.3	5.4
0003973708-01	B305	42.0	12.9	55.0	5.8
0003973732-01	B306	14.8	11.3	26.1	7.9
0003973773-01	B307	35.5	17.1	52.6	5.9
0003973799-01	B401	40.1	25.6	65.7	5
0005507066	B402	40.4	10.8	51.3	5.9
0005507116	B403	37.4	11.7	49.0	6.2
0003973898-01	B501	31.0	23.5	54.4	5.8
0003973302-01	B502	28.5	21.0	49.5	6.2
0003973336-01	B503	28.1	22.5	50.6	6.1
0003973377-01	C101	33.5	20.7	54.2	5.8
0003973401-01	C102	17.1	19.8	36.8	7.2
0003973435-01	C103	19.9	20.3	40.2	6.9
0003973476-01	C104	31.1	11.4	42.6	6.8
0003973492-01	C105	28.7	15.7	44.5	6.6
0003973534-01	C106	17.1	19.8	36.8	7.2
0003973559-01	C107	19.9	20.3	40.2	6.9
0003973591-01	C108	37.5	22.6	60.1	5.4
0003973625-01	C201	35.3	15.2	50.5	6.1
0003973658-01	C202	22.3	15.8	38.1	7.1
0003973682-01	C203	25.4	15.8	41.2	6.9
0003973716-01	C204	28.8	12.3	41.1	6.9
0003973740-01	C205	26.4	16.7	43.1	6.7
0003973765-01	C206	22.3	15.8	38.1	7.1
0003973781-01	C207	21.0	20.1	41.1	6.9
0003973815-01	C208	39.0	17.7	56.7	5.6
0005506365	C301	42.3	25.5	67.8	4.9
0005506373	C302	32.1	29.5	61.6	5.3
0005506399	C303	40.8	20.3	61.0	5.4
0005506423	C304	38.7	19.3	58.0	5.5



# Nationwide House Energy Rating Scheme\* - Class 2 summary

Certificate number: **0005509100**

Certificate Date:

**15 Dec 2020**

★ Average Star rating: **6.8**



## Summary of all dwellings continued

### Certificate Details

Certificate number	Unit number	Heating load	Cooling load	Total load	Star Rating
0005506449	C305	35.0	24.9	59.9	5.4
0005506357	C306	26.8	26.1	52.8	5.9
0005506381	C307	35.8	28.9	64.7	5.1
0005506415	C308	39.8	25.1	64.9	5.1
0003973500-01	D201	23.9	22.2	46.1	6.4
0003973526-01	D202	17.5	19.8	37.3	7.2
0003973542-01	D203	19.8	19.9	39.6	6.9
0003973575-01	D204	13.4	27.1	40.5	6.9
0005506555	D205	9.5	17.5	27.0	7.9
0005505987	D206	8.1	12.7	20.8	8.4
0005506548	D207	20.0	18.7	38.7	7
0005506597	D208	9.3	14.0	23.4	8.3
0005506589	D209	25.9	13.6	39.5	6.9
0003973724-01	D301	24.4	23.2	47.6	6.3
0005506514	D302	20.6	13.6	34.2	7.4
0003973807-01	D303	20.3	19.6	39.9	6.9
0005506522	D304	9.8	17.1	26.9	7.9
0005506530	D305	8.4	12.4	20.8	8.4
0005506571	D306	20.0	18.7	38.7	7
0005506563	D307	9.7	14.0	23.7	8.2
0005506605	D308	26.2	13.5	39.7	6.9
0005507132	D401	45.2	12.8	58.0	5.5
0005507140	D402	37.1	15.5	52.6	5.9
0003973906-01	D403	39.2	18.4	57.6	5.6
0005507074	D403	36.7	15.2	51.9	5.9
0005507090	D404	26.7	17.1	43.7	6.7
0005507124	D405	21.5	12.7	34.3	7.4
0005507082	D406	20.3	16.6	36.9	7.2
0005507157	D407	34.6	15.1	49.7	6.2

# BASIX<sup>®</sup>Certificate

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

## Multi Dwelling

Certificate number: 1023753M\_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](http://www.basix.nsw.gov.au)

This certificate is a revision of certificate number 1023753M lodged with the consent authority or certifier on 09 September 2019 with application DA2019/247.

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

Secretary

Date of issue: Tuesday, 15 December 2020

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



Planning,  
Industry &  
Environment

### Project summary

Project name	26 Crabbes Avenue, Willoughby_03
Street address	26 Crabbes Avenue North Willoughby 2068
Local Government Area	Willoughby City Council
Plan type and plan number	deposited 6291
Lot no.	4-11
Section no.	C
No. of residential flat buildings	4
No. of units in residential flat buildings	128
No. of multi-dwelling houses	0
No. of single dwelling houses	0

### Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 45	Target 45

### Certificate Prepared by

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82116346082

# Description of project

## Project address

Project name	26 Crabbes Avenue, Willoughby_03
Street address	26 Crabbes Avenue North Willoughby 2068
Local Government Area	Willoughby City Council
Plan type and plan number	deposited 6291
Lot no.	4-11
Section no.	C

## Project type

No. of residential flat buildings	4
No. of units in residential flat buildings	128
No. of multi-dwelling houses	0
No. of single dwelling houses	0

## Site details

Site area (m²)	14953
Roof area (m²)	7422
Non-residential floor area (m²)	3600.0
Residential car spaces	190
Non-residential car spaces	251

## Common area landscape

Common area lawn (m²)	3115.0
Common area garden (m²)	3000.0
Area of indigenous or low water use species (m²)	0.0

## Assessor details

Assessor number	HERA10033
Certificate number	0005509100
Climate zone	56
Ceiling fan in at least one bedroom	No
Ceiling fan in at least one living room or other conditioned area	No

## Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 45	Target 45

## Description of project

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

### Residential flat buildings - Building A, 52 dwellings, 6 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	106.0	0.0	0.0	0.0
A105	2	95.0	0.0	0.0	0.0
A204	1	60.0	0.0	0.0	0.0
A302	3	100.0	0.0	0.0	0.0
A306	2	103.0	0.0	0.0	0.0
A310	1	60.0	0.0	0.0	0.0
A402	3	100.0	0.0	0.0	0.0
A406	2	103.0	0.0	0.0	0.0
A410	1	60.0	0.0	0.0	0.0
A502	3	100.0	0.0	0.0	0.0
A506	2	103.0	0.0	0.0	0.0
A510	2	89.0	0.0	0.0	0.0
A603	2	91.0	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> )
A102	2	90.0	0.0	0.0	0.0
A201	3	100.0	0.0	0.0	0.0
A205	1	60.0	0.0	0.0	0.0
A303	1	59.0	0.0	0.0	0.0
A307	3	100.0	0.0	0.0	0.0
A311	1	60.0	0.0	0.0	0.0
A403	1	59.0	0.0	0.0	0.0
A407	3	100.0	0.0	0.0	0.0
A411	1	60.0	0.0	0.0	0.0
A503	1	59.0	0.0	0.0	0.0
A507	3	100.0	0.0	0.0	0.0
A511	2	100.0	0.0	0.0	0.0
A604	3	121.0	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> )
A103	1	90.0	0.0	0.0	0.0
A202	3	106.0	0.0	0.0	0.0
A206	2	99.0	0.0	0.0	0.0
A304	3	117.0	0.0	0.0	0.0
A308	3	106.0	0.0	0.0	0.0
A312	2	99.0	0.0	0.0	0.0
A404	3	117.0	0.0	0.0	0.0
A408	3	106.0	0.0	0.0	0.0
A412	2	99.0	0.0	0.0	0.0
A504	3	117.0	0.0	0.0	0.0
A508	3	103.0	0.0	0.0	0.0
A601	2	82.0	0.0	0.0	0.0
A605	3	128.0	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> )
A104	1	60.0	0.0	0.0	0.0
A203	2	90.0	0.0	0.0	0.0
A301	3	108.0	0.0	0.0	0.0
A305	3	126.0	0.0	0.0	0.0
A309	2	90.0	0.0	0.0	0.0
A401	3	108.0	0.0	0.0	0.0
A405	3	126.0	0.0	0.0	0.0
A409	2	90.0	0.0	0.0	0.0
A501	3	108.0	0.0	0.0	0.0
A505	3	126.0	0.0	0.0	0.0
A509	2	109.0	0.0	0.0	0.0
A602	3	117.0	0.0	0.0	0.0
A606	2	87.0	0.0	0.0	0.0

### Residential flat buildings - Building B, 29 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	104.0	0.0	0.0	0.0
B105	3	122.0	0.0	0.0	0.0
B201	3	104.0	0.0	0.0	0.0
B205	3	122.0	0.0	0.0	0.0
B301	3	104.0	0.0	0.0	0.0
B305	1	73.0	0.0	0.0	0.0
B402	3	130.0	0.0	0.0	0.0
B503	2	94.0	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	104.0	0.0	0.0	0.0
B106	1	54.0	0.0	0.0	0.0
B202	3	104.0	0.0	0.0	0.0
B206	1	54.0	0.0	0.0	0.0
B302	3	104.0	0.0	0.0	0.0
B306	2	90.0	0.0	0.0	0.0
B403	3	130.0	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> )
B103	1	54.0	0.0	0.0	0.0
B107	3	104.0	0.0	0.0	0.0
B203	1	54.0	0.0	0.0	0.0
B207	3	104.0	0.0	0.0	0.0
B303	2	90.0	0.0	0.0	0.0
B307	3	105.0	0.0	0.0	0.0
B501	2	91.0	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> )
B104	3	122.0	0.0	0.0	0.0
B108	3	104.0	0.0	0.0	0.0
B204	3	122.0	0.0	0.0	0.0
B208	3	104.0	0.0	0.0	0.0
B304	1	73.0	0.0	0.0	0.0
B401	3	112.0	0.0	0.0	0.0
B502	2	94.0	0.0	0.0	0.0

### Residential flat buildings - Building C, 24 dwellings, 3 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	117.0	0.0	0.0	0.0
C105	3	115.0	0.0	0.0	0.0
C201	3	117.0	0.0	0.0	0.0
C205	3	115.0	0.0	0.0	0.0
C301	1	86.0	0.0	0.0	0.0
C305	1	86.0	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> )
C102	2	75.0	0.0	0.0	0.0
C106	2	75.0	0.0	0.0	0.0
C202	2	75.0	0.0	0.0	0.0
C206	2	75.0	0.0	0.0	0.0
C302	1	53.0	0.0	0.0	0.0
C306	1	53.0	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> )
C103	2	75.0	0.0	0.0	0.0
C107	2	75.0	0.0	0.0	0.0
C203	2	75.0	0.0	0.0	0.0
C207	2	75.0	0.0	0.0	0.0
C303	1	53.0	0.0	0.0	0.0
C307	1	53.0	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> )
C104	3	115.0	0.0	0.0	0.0
C108	3	115.0	0.0	0.0	0.0
C204	3	115.0	0.0	0.0	0.0
C208	3	115.0	0.0	0.0	0.0
C304	1	86.0	0.0	0.0	0.0
C308	1	86.0	0.0	0.0	0.0

### Residential flat buildings - Building D, 23 dwellings, 4 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> )
D201	2	90.0	0.0	0.0	0.0
D205	2	92.0	0.0	0.0	0.0
D301	2	90.0	0.0	0.0	0.0
D305	2	62.0	0.0	0.0	0.0
D401	2	89.0	0.0	0.0	0.0
D405	2	103.0	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> )
D202	2	83.0	0.0	0.0	0.0
D206	1	62.0	0.0	0.0	0.0
D302	3	120.0	0.0	0.0	0.0
D306	1	42.0	0.0	0.0	0.0
D402	2	69.0	0.0	0.0	0.0
D406	3	119.0	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> )
D203	2	83.0	0.0	0.0	0.0
D207	1	42.0	0.0	0.0	0.0
D303	2	83.0	0.0	0.0	0.0
D307	1	62.0	0.0	0.0	0.0
D403	2	69.0	0.0	0.0	0.0
D407	2	103.0	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> )
D204	2	90.0	0.0	0.0	0.0
D208	1	62.0	0.0	0.0	0.0
D304	2	92.0	0.0	0.0	0.0
D308	2	92.0	0.0	0.0	0.0
D404	2	89.0	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 A

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

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

Common area	Floor area (m <sup>2</sup> )
Lift car (No.3)	-

### Common areas of unit building - Building B

Common area	Floor area (m <sup>2</sup> )
Lift car (No.4)	-

Common area	Floor area (m <sup>2</sup> )
Lift car (No.5)	-

### Common areas of unit building - Building C

Common area	Floor area (m <sup>2</sup> )
Lift car (No.6)	-

Common area	Floor area (m <sup>2</sup> )
Lift car (No.7)	-

### Common areas of unit building - Building D

Common area	Floor area (m <sup>2</sup> )
Lift car (No.8)	-

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

Common area	Floor area (m <sup>2</sup> )
Indoor pool &/or spa area (No. 1)	440.0
Plant/Service and Storage	1125.0
Hallway/lobbies Naturally Ventillated	511.0

Common area	Floor area (m <sup>2</sup> )
Car park area	6500.0
Ground floor lobbies	620.0

Common area	Floor area (m <sup>2</sup> )
Garbage room	180.0
Hallway/lobbies Mech Vent	731.0

# Schedule of BASIX commitments

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

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

## 2. Commitments for 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

## 3. 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

## 4. 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

5. Commitments for multi-dwelling houses

6. Commitments for single dwelling houses

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

- (i) Water
- (ii) Energy

## Schedule of BASIX commitments

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

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

#### (a) Dwellings

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

	Fixtures					Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 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	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
A103, A104, A204, A205, A303, A310, A311, A403, A410, A411, A503	-	-	-	-	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
A102, A105, A203, A206, A306, A309, A312, A406, A409, A412, A506, A509, A510, A511, A601, A603, A604, A605, A606	-	-	-	-	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	-	-	-	-	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 & gas oven	4 star	yes	4 star	4 star	2.5 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	37.0	11.8
A102	16.2	16.3
A103	11.1	17.6
A104	9.5	17.8
A105	35.4	17.5
A201	34.4	17.0
A202	24.6	15.1
A203	16.4	13.1
A204	9.7	27.2
A205	7.4	27.7
A206	35.8	17.0
A301	36.2	16.8
A302	32.4	21.6
A303	4.2	27.7
A304	13.2	13.5
A305	11.6	12.3
A306	22.2	16.1
A307	30.5	23.1
A308	16.1	20.4
A309	11.3	13.5
A310	5.8	27.5
A311	8.3	25.0
A312	26.2	12.2
A401	27.3	18.4
A402	19.3	21.9
A403	7.2	28.1
A404	13.7	13.6

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
A405	11.7	12.1
A406	19.7	18.6
A407	29.8	23.1
A408	16.1	21.8
A409	11.1	13.4
A410	6.1	27.7
A411	4.5	28.1
A412	27.0	11.7
A501	32.4	13.6
A502	23.6	19.8
A503	9.3	25.3
A504	16.2	12.2
A505	13.5	10.2
A506	21.1	17.5
A507	35.1	19.5
A508	25.7	12.0
A509	14.0	15.3
A510	15.7	18.4
A511	40.4	9.9
A601	44.7	12.1
A602	34.5	13.2
A603	24.9	16.0
A604	43.6	18.3
A605	31.8	10.4
All other dwellings	36.8	12.8

**(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	3 star (> 6 but ≤ 7.5 L/min)	4 star	5 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.2)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.3)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 8
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 7
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 7



## 2. 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	5 star	5 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	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
B303, B306, B501, B502, B503	-	-	-	-	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
B103, B106, B203, B206, B304, B305	-	-	-	-	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	-	-	-	-	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 & gas oven	4 star	yes	4 star	4 star	2.5 star	-	-

(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.			

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
B101	25.9	11.6
B102	17.0	20.7
B103	21.2	14.0
B104	20.5	8.7
B105	19.8	8.0
B106	17.2	11.8
B107	15.0	22.5

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
B108	17.5	15.5
B201	25.8	13.7
B202	17.5	20.6
B203	21.8	13.5
B204	18.9	10.6
B205	18.6	9.2
B206	18.0	12.0
B207	18.2	23.6
B208	20.8	18.4
B301	29.1	13.7
B302	25.1	20.5
B303	15.6	12.7
B304	42.8	16.5
B305	42.0	12.9
B306	14.8	11.3
B307	35.5	17.1
B401	40.1	25.6
B402	29.8	12.6
B403	27.2	12.9
B501	31.0	23.5
B502	28.5	21.0
All other dwellings	28.1	22.5

**(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	3 star (> 6 but ≤ 7.5 L/min)	4 star	5 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No.4)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.5)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 6
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 6



### 3. 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	5 star	5 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	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
C101, C104, C105, C108, C201, C204, C205, C208	-	-	-	-	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
C102, C103, C106, C107, C202, C203, C206, C207	-	-	-	-	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	-	-	-	-	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes

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 & gas oven	4 star	yes	4 star	4 star	2.5 star	-	-

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
C101	33.5	20.7
C103	20.3	19.9
C104	31.1	11.4
C105	28.7	15.7

	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)
C107	19.9	20.3
C108	37.5	22.6
C201	35.3	15.2
C203	25.4	15.8
C204	28.8	12.3
C205	26.4	16.7
C207	21.0	20.1
C208	39.0	17.7
C301	42.3	25.5
C302	32.1	29.5
C303	40.8	20.3
C304	38.7	19.3
C305	35.0	24.9
C306	26.8	26.1
C307	35.8	28.9
C308	39.8	25.1
C102, C106	17.1	19.8
All other dwellings	22.3	15.8

**(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	3 star (> 6 but ≤ 7.5 L/min)	4 star	5 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No.6)	-	-	light-emitting diode	connected to lift call button	No
Lift car (No.7)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 4
Lift (No. 7)	gearless traction with V V V F motor	Number of levels (including basement): 4



#### 4. 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	5 star	5 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	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

	Cooling		Heating		Artificial lighting						Natural lighting	
Dwelling no.	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
D302	-	-	-	-	3 (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
D406	-	-	-	-	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
D206, D207, D208, D306, D307	-	-	-	-	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
D401, D402, D403, D404, D405, D407	-	-	-	-	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
All other dwellings	-	-	-	-	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 & gas oven	4 star	yes	4 star	4 star	2.5 star	-	-

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in mJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in mJ/m <sup>2</sup> /yr)
D201	23.9	22.2
D202	17.5	19.8
D203	19.8	19.9
D204	27.1	13.4

	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)
D205	17.5	9.5
D206	8.1	12.7
D208	9.3	14.0
D301	24.4	23.2
D302	20.6	13.6
D303	20.3	19.6
D304	9.8	17.1
D305	8.4	12.4
D307	9.7	14.0
D308	26.2	13.5
D401	45.2	12.8
D402	37.1	15.5
D403	36.7	15.2
D404	26.7	17.1
D405	21.5	12.7
D406	20.3	16.6
D407	34.6	15.1
All other dwellings	20.0	18.7

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

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

<b>Common area</b>	<b>Showerheads rating</b>	<b>Toilets rating</b>	<b>Taps rating</b>	<b>Clothes washers rating</b>
All common areas	3 star (> 6 but ≤ 7.5 L/min)	4 star	5 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No.8)	-	-	light-emitting diode	connected to lift call button	No

Central energy systems	Type	Specification
Lift (No. 8)	gearless traction with V V V F motor	Number of levels (including basement): 7



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

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	3 star (> 6 but ≤ 7.5 L/min)	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Central water tank - rainwater or stormwater (No. 1)	8000.0	To collect run-off from at least: - 400.0 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 6115.0 square metres of common landscaped area on the site - car washing in 0 car washing bays on the site
Pool (No. 1)	Volume: 70.0 kLs	Location: Indoor pool &/or spa area (No. 1)	-

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

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Indoor pool &/or spa area (No. 1)	ventilation (supply + exhaust)	time clock or BMS controlled	light-emitting diode	time clocks	No
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	zoned switching with motion sensor	No
Garbage room	ventilation exhaust only	-	light-emitting diode	motion sensors	No
Plant/Service and Storage	ventilation supply only	interlocked to light	light-emitting diode	manual on / manual off	No
Ground floor lobbies	ventilation supply only	time clock or BMS controlled	light-emitting diode	motion sensors	No
Hallway/lobbies Mech Vent	ventilation supply only	time clock or BMS controlled	light-emitting diode	zoned switching with motion sensor	No
Hallway/lobbies Naturally Ventillated	no mechanical ventilation	-	light-emitting diode	zoned switching with motion sensor	No

Central energy systems	Type	Specification
Central hot water system (No. 1)	electric heat pump - gas boosted	Piping insulation (ringmain & supply risers): (a) Piping external to building: R1.0 (~38 mm); (b) Piping internal to building: R1.0 (~38 mm)
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 25.0 peak kW
Pool (No. 1)	Heating source: electric heat pump	Pump controlled by timer: yes
Other	Building management system 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).