

# BASIX Assessment Report

**Project:**

**14-16 Marshall Avenue, 5-9 Holdsworth Avenue  
& 2-10 Berry Road, St Leonards NSW 2065**

**Job Number: 022-2199**

**Rev 1.2 – 15 January 2024**



**Eco Engineering Group**

SUSTAINABILITY.

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## Document Control

Revision	Date	Author
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# 1. Executive Summary

EEG has been commissioned to assess the interaction of the residential area of the proposed development at 14-16 Marshall Avenue, 5-9 Holdsworth Avenue & 2-10 Berry Road, St Leonards NSW 2065, with the local environment in terms of BASIX compliance.

A BASIX Certificate is a regulatory requirement and demonstrates compliance with the NSW Government's sustainability targets. BASIX assessment and certification has been completed for this project (Certificate No. 1241743M\_03).

Dwellings within the development have been assessed in terms of their passive energy design using the BASIX Thermal Comfort protocol. They have also been assessed in terms of their ability to conserve water and also to minimise energy consumption via appliances and hot water etc.

With the recommendations provided in the BASIX certificate, the development meets and exceeds the minimum requirements for all the following areas.

- Water Efficiency
- Energy Efficiency
- Thermal Comfort

This development achieves the following targets:

- Water Efficiency: 40% reduction (minimum requirements under BASIX: 40%)
- Energy Efficiency: 31% reduction (minimum requirements under BASIX: 25%)
- Thermal Comfort: Outperforms the thermal performance requirements under BASIX.

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## 2. Introduction

BASIX is an NSW State Planning Policy Tool which assesses the environmental performance of new residential premises against a range water, energy and greenhouse gas emissions targets. The assessment has three core components, BASIX Thermal Comfort, BASIX Water and BASIX Energy.

The thermal comfort assessment requires that the thermal performance of dwellings is evaluated and measures put in place to ensure annual heating and cooling loads do not exceed pre-defined limits without compromising the occupant's thermal comfort. This assessment uses computer simulation to evaluate the estimated building fabric thermal performance and passive solar design features such as orientation and solar shading.

The energy section evaluates gas and electrical energy used for heating, cooling lighting, ventilation, and appliances. The BASIX Energy target requires the development to use 25% less energy than the NSW average.

The water assessment takes account of landscaping, stormwater management as well as water efficiency performance of fixtures and fitting such as taps and showers. The BASIX target for water requires that potable water consumption is at least 40% lower than the NSW average.

**Note:** this report is only a guide to the BASIX certificate, for full details of BASIX requirements please refer to the BASIX certificate.

### 3. Building Description

The proposed development will be located at 14-16 Marshall Avenue, 5-9 Holdsworth Avenue & 2-10 Berry Road, St Leonards NSW 2065.

#### 3.1. Information Used

The assessment is based on the following architectural drawings provided by PTW Architects (Table 1).

Table 1. Architectural drawing list.

Drawing Title	Drawing Number
Cover Sheet & Drawing List	DA-A110010
Development Information	DA-A110020
Basix Notes	DA-A110030
Site Analysis	DA-A120010
Demolition Plan	DA-A120020
Site Plan	DA-B1B0910
Basement 02 Plan	DA-B1B1010
Basement 01 Plan	DA-B1GRD10
Ground Floor Plan	DA-B1L0110
Level 01 Plan	DA-B1L0210
Level 02 Plan	DA-B1L0310
Level 03 Plan	DA-B1L0410
Level 04 Plan	DA-B1L0510
Level 05 Plan	DA-B1L0610
Level 06 Plan	DA-B1L0710
Level 07 Plan	DA-B1L0810
Level 08 Plan	DA-B1L0910
Level 09 Plan	DA-B1L1010
Level 10 Plan	DA-B1L1110
Level 11 Plan	DA-B1L1210
Level 12 Plan	DA-B1L1310
Level 13 Plan	DA-B1L1410
East Elevation	DA-C010010
South Elevation	DA-C020010
West Elevation	DA-C030010
North Elevation	DA-C040010
Green Spine West Elevation	DA-C050010
Green Spine East Elevation	DA-C060010
Area 13 South Elevation & Area	DA-C070010
Perspective 1	DA-C510010
Perspective 2	DA-C510011
Materials And Finishes Board	DA-C910010
Section Bldg 14-15	DA-D110010
Section Bldg 13-15	DA-D120010
GFA Plan 01	DA-Q110010
GFA Plan 02	DA-Q120010

Solar Access Compliance Diagrams	DA-Q310010
Shadow Diagrams	DA-Q320010
Solar Analysis-Sun Eye Views	DA-Q330010
Cross Ventilation Compliance Diagrams	DA-Q410010
Adaptable/liveable Apartment Type Plan 1	DA-Q510010
Adaptable/liveable Apartment Type Plan 2	DA-Q520010
Deep Soil Diagram	DA-Q610010
Communal Open Space Diagram	DA-Q710010
Height Plane Diagram	DA-Q810010
Apartment Schedule	DA-Y210010
Notification Plan	DA-Y310010

## 4. BASIX Water Section

The water efficiency performance of the development has been assessed using the online BASIX Tool. The assessment has considered the common area and central system features including the landscape design, plant species, water catchment areas, rain water tank size and efficiency of preferred fixtures and fittings in the dwellings.

The proposed development will meet the mandatory BASIX water target of 40% as long as the water commitments detailed in Table 2 are installed. For details of the requirements necessary to achieve this target, please refer to the BASIX Certificate No. 1241743M\_03.

Table 2. Water Commitments.

Common Areas and Central Systems	
Common areas	<ul style="list-style-type: none"> <li>No common showerhead facility.</li> <li>4-star (water-rated) toilets.</li> <li>5-star (water-rated) taps.</li> <li>No common clothes washer facility.</li> </ul>
Central systems	<ul style="list-style-type: none"> <li>Fire sprinkler system (No. 1).</li> <li>Fire sprinkler system (No. 2).</li> <li>Rainwater tank with capacity of minimum 15,000L (minimum), collecting run-off from minimum 1980 m<sup>2</sup> of roof area, 30 square metres of impervious area in the development, 150 square metres of garden/lawn area in the development, 20 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).</li> <li>used for irrigation of common area landscape with minimum area of 126.6m<sup>2</sup> and 2 carwash bay.</li> </ul>
Private Dwellings	
Fixtures for apartments	<ul style="list-style-type: none"> <li>3-star (Water Rating) showerheads with a flow rate &gt; 4.5 but ≤ 6 L/min.</li> <li>4-star (Water Rating) toilets.</li> <li>4-star (Water Rating) kitchen taps.</li> <li>5-star (Water Rating) bathroom taps.</li> <li>4-star (Water Rating) dishwashers.</li> </ul>

## 5. BASIX Thermal Comfort Section

The preliminary thermal performance of the development has been evaluated using BERS Pro software; this computer simulation of residential developments is used to assess the potential of a residential development to have low heating and cooling energy requirements once operational.

### 5.1. Modelling Assumptions

BERS Pro software calculates the transient hourly heat gains and losses for each space inside a building taking into account the building's thermal storage, typical residential occupancy and operational profiles plus hourly weather data for the site.

Building geometry and orientation were modelled according to supplied drawings.

The "base-case" building fabric and estimated glazing and thermal performance requirements are described in Table 3 below. Please note the estimated requirements below are based on the nominated construction materials by the architect.

Table 3. Building Fabric Requirements.

Element	Insulation/glazing
External walls	<ul style="list-style-type: none"> <li>Tilt up concrete, lined with added R2.0 insulation</li> <li>Autoclaved Aerated Concrete Cavity Panel Direct Fix with added R2.0 insulation</li> </ul>
Internal walls	<ul style="list-style-type: none"> <li>Internal walls (where separating conditioned and non-conditioned zones) with added R1 insulation.</li> </ul>
Floor	<ul style="list-style-type: none"> <li>Suspended concrete slab with added R2.0 insulation</li> </ul>
Glazing performance	<p>To ensure glazing consistency, identical glazing performance has been nominated for all aspects based on the minimum requirements.</p> <ul style="list-style-type: none"> <li>Maximum System U-value of 3.4 and SHGC of 0.32 <math>\pm</math> 5%.</li> </ul>
Ceiling	<ul style="list-style-type: none"> <li>Plasterboard with added R3.5 insulation.</li> </ul>
Roof	<ul style="list-style-type: none"> <li>Concrete with no added insulation (ceiling is insulated)</li> </ul>

#### Note:

- The preliminary thermal insulation and glazing performance requirements outlined in this report nominate the estimated minimum BASIX requirements only. The specified performance values therefore do not consider requirements for any other disciplines such as Acoustics, Fire or Safety compliance. Where required, the development shall comply with any additional requirements related to the local council or other design disciplines in addition to the compliance requirements detailed in this report.
- Compliance with the minimum BASIX requirements does not warrant thermal comfort. All services consultants and contractors shall design and construct the development to comply with the minimum requirements of the NCC Vol 1 & 2 and NSW Section J requirements (revision of the NCC applicable to the development).
- NCC 2022 Section J has been released at the time of this assessment. We understand that for Section J compliance purposes, the revision of the NCC applicable to this development is NCC 2019 Amendment 1. The project team are required to confirm this with the PCA / planning authority prior to the design finalisation and construction since the minimum requirements under NCC 2022 Part J may be different and a re-assessment may be necessary.



## 6. BASIX Energy Section

The Energy performance of the development has been assessed using the online BASIX Tool. The assessment has considered Common Area and Central System features including the lifts, ventilation and lighting for common areas (corridors, lobbies, car park etc.), centralised domestic hot water and the efficiency of preferred lighting and appliances in the dwellings.

The proposed development will meet the mandatory BASIX Energy target of 25% as long as the energy commitments detailed in Table 4 are installed.

Table 4. Energy Commitments.

Component		Commitment
Common Areas of residential areas	Lifts	<ul style="list-style-type: none"> <li>Quantity: 6, Gearless traction with VVVF motor.</li> </ul>
	Swimming pool / Sauna	<ul style="list-style-type: none"> <li>N/A</li> </ul>
	Ventilation	<ul style="list-style-type: none"> <li>Carpark: ventilation (supply &amp; exhaust). Controlled with carbon monoxide monitor and VSD fan.</li> <li>Switch room: ventilation (supply only), Thermostatically controlled.</li> <li>Garbage room: ventilation exhaust only.</li> <li>Plant or service rooms: ventilation (supply only). Thermostatically controlled.</li> <li>Ground floor lobby type: ventilation (supply only). time clock or BMS controlled</li> <li>Hallways areas: ventilation (supply only). time clock or BMS controlled</li> </ul>
	Lighting	<ul style="list-style-type: none"> <li>Carpark: LED lighting with motion sensors.</li> <li>Lifts: LED lighting, connected to the lift call button.</li> <li>Switch room: LED lighting with manual on / manual off.</li> <li>Garbage room: LED lighting with motion sensors.</li> <li>Plant or service rooms: LED lighting with manual on / manual off.</li> <li>Ground floor lobby type: LED lighting with time clock and motion sensors.</li> <li>Hallways areas: LED lighting with time clock and motion sensors.</li> </ul>
	Hot Water	<ul style="list-style-type: none"> <li>All buildings: Gas-fired storage (manifolded) with R0.6 insulation to the pipes.</li> </ul>
	Alternative Energy Supply	<ul style="list-style-type: none"> <li>52.2 Solar PV system</li> </ul>
Private Dwellings	Ventilation	<ul style="list-style-type: none"> <li>Kitchen &amp; Laundry Exhaust: Individual fan, ducted to façade or roof, manual on/off switch.</li> <li>Bathroom: Individual fan, ducted to façade or roof, interlocked to light.</li> </ul>
	Heating & Cooling to living and bedroom areas	<ul style="list-style-type: none"> <li>Heating: 1-phase air-conditioning 4 Star (old label).</li> <li>Cooling: 1-phase air-conditioning 4 Star (old label).</li> </ul>
	Lighting	<ul style="list-style-type: none"> <li>Fluorescent or LED lights with dedicated fittings.</li> </ul>
	Appliances	<ul style="list-style-type: none"> <li>Gas cooktops and electric ovens.</li> <li>4-star (energy rating) dishwashers.</li> <li>3-star (energy rating) clothes dryers.</li> </ul>

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## 7. Disclaimer

This report is prepared using the information described above and inputs from other consultants. Whilst EEG has endeavoured to ensure the information used is accurate, no responsibility or liability to any third party is accepted for any loss or damage arising out of the use of this report by any third party. Any third party wishing to act upon any material contained in this report should first contact EEG for detailed advice which will take into account that party's particular requirements.

Computer performance assessment provides an estimate of building performance. This estimate is based on a necessarily simplified and idealised version of the building that does not and cannot fully represent all the intricacies of the building once built. As a result, simulation results only represent an interpretation of the potential performance of the building. Although great care has been taken to prepare this report, EEG does not make any representations or give any warranties or assurances as to the accuracy or completeness of the information contained in the report or that the report is free from errors or omission. EEG and its employees and agents shall not be liable for any loss arising because of, any person using or relying on the report and whether caused by reason or error, negligent act or omission in the report. This draft BASIX assessment and certification has been prepared based on the preliminary architectural and building services design with the view to conduct a detailed assessment once the design is further developed.

Performance of the completed building may be significantly affected by the quality of construction; commissioning, ongoing management of the building, and the way the building is operated, monitored and maintained. Building fabric inputs require verifiable manufacturer data to confirm thermal properties.

This report is intended as a guide to assist with the application of BASIX. It should be read in conjunction with the BASIX and the NCC applicable to the development; specific applications may vary during the design development of the project.



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## 8. Summary & Conclusion

The proposed development has been assessed in terms of its ability to conserve water and minimise energy consumption. Furthermore, the thermal performance (passive and fabric design) of the development will comply with the BASIX thermal comfort requirements.

Subject to the provisions of this report the proposed development will be able to achieve the BASIX requirements. For further details, please refer to the BASIX Certificate 1241743M\_03 provided.



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## Appendix A – BASIX Certificate

# BASIX<sup>®</sup>Certificate

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

## Multi Dwelling

Certificate number: 1241743M\_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 1241743M lodged with the consent authority or certifier on 26 April 2023 with application PAN 329459.

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 Environment Planning and Assessment Regulation 2000

Secretary

Date of issue: Tuesday, 16 January 2024

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



### Project summary

Project name	14-16 Marshall Ave, St Leonards NSW 2065_03
Street address	14-16 MARSHALL AVENUE ST LEONARDS NSW 2065
Local Government Area	LANE COVE
Plan type and plan number	Deposited Plan -
Lot no.	DP7259
Section no.	-
No. of residential flat buildings	3
No. of units in residential flat buildings	185
No. of multi-dwelling houses	0
No. of single dwelling houses	0

### Project score

Water	✓ 40	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 31	Target 25

If any changes to this BASIX certificate are required, please contact EEG with following details:

- Project reference: 14-16 Marshall Ave, St Leonards NSW 2065
- Contact number: 0430 108 801




### Certificate Prepared by

Name / Company Name: Eco Engineering Group Pty Ltd

ABN (if applicable): 11153980842

# Description of project

Project address	
Project name	14-16 Marshall Ave, St Leonards NSW 2065_03
Street address	14-16 MARSHALL AVENUE ST LEONARDS NSW 2065
Local Government Area	LANE COVE
Plan type and plan number	Deposited Plan -
Lot no.	DP7259
Section no.	-
Project type	
No. of residential flat buildings	3
No. of units in residential flat buildings	185
No. of multi-dwelling houses	0
No. of single dwelling houses	0
Site details	
Site area (m²)	5874
Roof area (m²)	2476
Non-residential floor area (m²)	-
Residential car spaces	249
Non-residential car spaces	-

Common area landscape	
Common area lawn (m²)	125.00
Common area garden (m²)	1556.00
Area of indigenous or low water use species (m²)	1302.00
Assessor details and thermal loads	
Assessor number	BDAV/16/1757
Certificate number	0008592050
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	 31 Target 25

## Description of project

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

### Residential flat buildings - Area 13, 63 dwellings, 11 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> )
13031	1	49.00	5.00	0.00	0.00
13035	4+	142.00	5.00	10.80	0.00
13042	2	70.00	7.00	0.00	0.00
13052	2	70.00	7.00	0.00	0.00
13056	2	70.00	4.00	0.00	0.00
13062	2	70.00	7.00	0.00	0.00
13066	2	70.00	4.00	0.00	0.00
13072	2	70.00	7.00	0.00	0.00
13076	2	70.00	4.00	0.00	0.00
13082	2	70.00	7.00	0.00	0.00
13086	3	85.00	6.00	0.00	0.00
13094	2	79.6	0	0.00	0.00
13102	2	70.00	7.00	0.00	0.00
13106	3	95.7	0	0	0
13114	2	79.6	0	0.00	0.00
13122	3	88.00	6.00	0.00	0.00

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> )
13032	2	70.00	7.00	0.00	0.00
13036	4+	143.00	4.00	0.00	0.00
13043	2	72.00	7.00	0.00	0.00
13053	1	50.00	6.00	0.00	0.00
13057	2	70.00	7.00	0.00	0.00
13063	1	50.00	6.00	0.00	0.00
13067	2	70.00	7.00	0.00	0.00
13073	1	50.00	6.00	0.00	0.00
13077	2	70.00	7.00	0.00	0.00
13083	1	50.00	6.00	0.00	0.00
13091	1	49.00	5.00	0.00	0.00
13095	3	85.00	6.00	0.00	0.00
13103	3	88.00	6.00	0.00	0.00
13111	1	49.00	5.00	0.00	0.00
13115	3	85.00	6.00	0.00	0.00
13123	3	89.00	5.00	0.00	0.00

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> )
13033	2	72.00	7.00	7.60	0.00
13037	4+	127.00	6.00	0.00	0.00
13044	2	70.00	4.00	0.00	0.00
13054	2	72.00	7.00	0.00	0.00
13058	2	73.00	6.00	0.00	0.00
13064	2	72.00	7.00	0.00	0.00
13068	2	73.00	6.00	0.00	0.00
13074	2	72.00	7.00	0.00	0.00
13078	2	73.00	6.00	0.00	0.00
13084	3	92.00	6.00	0.00	0.00
13092	2	70.00	7.00	0.00	0.00
13096	3	95.7	0	0	0
13104	2	79.6	0	0.00	0.00
13112	2	70.00	7.00	0.00	0.00
13116	3	95.7	0	0	0
13124	3	85.00	6.00	0.00	0.00

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> )
13034	2	70.00	4.00	7.20	0.00
13041	1	49.00	5.00	0.00	0.00
13051	1	49.00	5.00	0.00	0.00
13055	2	70.00	4.00	0.00	0.00
13061	1	49.00	5.00	0.00	0.00
13065	2	70.00	4.00	0.00	0.00
13071	1	49.00	5.00	0.00	0.00
13075	2	70.00	4.00	0.00	0.00
13081	1	49.00	5.00	0.00	0.00
13085	3	99.00	6.00	0.00	0.00
13093	3	88.00	6.00	0.00	0.00
13101	1	49.00	5.00	0.00	0.00
13105	3	85.00	6.00	0.00	0.00
13113	3	88.00	6.00	0.00	0.00
13121	4+	120.00	6.00	0.00	0.00

## Residential flat buildings - Area 14, 54 dwellings, 12 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> )
14001	3	128.00	6.00	0.00	0.00
14005	2	103.00	4.00	0.00	0.00
14024	3	89.00	4.00	0.00	0.00
14033	2	73.00	3.00	3.80	0.00
14041	2	67.00	6.00	0.00	0.00
14045	2	80.7	0.00	0.00	0.00
14054	1	50.2	0	0.00	0.00
14062	2	68.00	6.00	0.00	0.00
14071	2	78.00	3.00	0.00	0.00
14076	1	45.00	5.00	0.00	0.00
14085	2	69.00	6.00	0.00	0.00
14094	2	75	0	0.00	0.00
14102	2	68.00	6.00	0.00	0.00
14112	4+	115.00	4.00	0.00	0.00

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> )
14002	3	108.00	8.00	0.00	0.00
14021	3	85.00	8.00	0.00	0.00
14025	3	106.00	0.00	0.00	0.00
14034	3	89.00	4.00	74.00	0.00
14042	2	66.00	7.00	0.00	0.00
14046	2	70.2	8.00	0.00	0.00
14055	3	102.8	0.00	0.00	0.00
14064	2	75	0	0.00	0.00
14072	2	68.00	6.00	0.00	0.00
14081	2	78.00	3.00	0.00	0.00
14086	1	45.00	5.00	0.00	0.00
14095	2	69.00	6.00	0.00	0.00
14104	2	75	0	0.00	0.00
14113	4+	124.00	5.00	0.00	0.00

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> )
14003	3	110.00	8.00	0.00	0.00
14022	2	66.00	7.00	0.00	0.00
14031	2	67.00	6.00	0.00	0.00
14035	3	93.00	0.00	73.00	0.00
14043	2	73.00	3.00	0.00	0.00
14051	2	67.00	6.00	0.00	0.00
14056	2	63.00	8.00	0.00	0.00
14065	2	69.00	6.00	0.00	0.00
14074	2	75	4.00	0.00	0.00
14082	2	68.00	6.00	0.00	0.00
14091	2	78.00	3.00	0.00	0.00
14096	1	45.00	5.00	0.00	0.00
14105	3	95.6	6.00	0.00	0.00

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> )
14004	4+	130.00	4.00	0.00	0.00
14023	2	73.00	3.00	0.00	0.00
14032	2	66.00	7.00	6.60	0.00
14036	2	63.00	8.00	0.00	0.00
14044	2	81.9	0	0.00	0.00
14052	3	92.00	6.00	0.00	0.00
14061	2	78.00	3.00	0.00	0.00
14066	1	45.00	5.00	0.00	0.00
14075	2	69.00	6.00	0.00	0.00
14084	2	75	0	0.00	0.00
14092	2	68.00	6.00	0.00	0.00
14101	3	95.5	0	0.00	0.00
14111	4+	132.00	5.00	0.00	0.00

## Residential flat buildings - Area 15, 68 dwellings, 11 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> )
15021	1	56.00	4.00	0.00	0.00
15025	1	57.00	0.00	0.00	0.00

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> )
15022	2	72.00	6.00	0.00	0.00
15031	3	88.00	6.00	0.00	0.00

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> )
15023	2	79.00	6.00	0.00	0.00
15032	3	94.00	5.00	16.00	0.00

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> )
15024	1	58.00	6.00	0.00	0.00
15033	2	70.00	4.00	2.20	0.00



Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
15034	1	50.00	6.00	2.60	0.00
15041	3	88.00	6.00	0.00	0.00
15045	2	72.00	7.00	0.00	0.00
15052	3	94.00	5.00	0.00	0.00
15056	1	50.00	6.00	0.00	0.00
15062	3	94.00	5.00	0.00	0.00
15066	1	50.00	6.00	0.00	0.00
15072	2	75	0	0.00	0.00
15076	1	50.00	6.00	0.00	0.00
15082	3	89.00	5.00	0.00	0.00
15086	1	53	0	0.00	0.00
15095	2	70.00	7.00	0.00	0.00
15103	2	87.5	0	0.00	0.00
15112	3	89.00	5.00	0.00	0.00
15121	3	95	0	0.00	0.00

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
15035	2	72.00	7.00	3.30	0.00
15042	3	94.00	5.00	0.00	0.00
15046	2	70.00	7.00	0.00	0.00
15053	2	70.00	4.00	0.00	0.00
15057	2	70.00	7.00	0.00	0.00
15063	1	50.4	0	0.00	0.00
15067	2	70.00	7.00	0.00	0.00
15073	1	50.5	0	0.00	0.00
15077	2	70.00	7.00	0.00	0.00
15083	3	95.3	0	0.00	0.00
15091	3	88.00	6.00	0.00	0.00
15096	1	49.00	5.00	0.00	0.00
15105	2	70.00	7.00	0.00	0.00
15113	2	87.5	0	0.00	0.00
15122	3	87.00	7.00	0.00	0.00

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
15036	2	70.00	7.00	0.00	0.00
15043	2	70.00	4.00	0.00	0.00
15047	1	49.00	5.00	0.00	0.00
15054	1	50.00	6.00	0.00	0.00
15058	1	49.00	5.00	0.00	0.00
15064	1	50.00	6.00	0.00	0.00
15068	1	49.00	5.00	0.00	0.00
15074	1	50.00	6.00	0.00	0.00
15078	1	49.00	5.00	0.00	0.00
15084	1	56.1	0	0.00	0.00
15092	3	89.00	5.00	0.00	0.00
15101	3	88.00	6.00	0.00	0.00
15106	1	49.00	5.00	0.00	0.00
15114	2	67.00	7.00	0.00	0.00
15123	3	95.8	0	0.00	0.00

Dwelling no.	No. of bedrooms	Conditioned floor area (m²)	Unconditioned floor area (m²)	Area of garden & lawn (m²)	Indigenous species (min area m²)
15037	1	49.00	5.00	0.00	0.00
15044	1	50.00	6.00	0.00	0.00
15051	3	88.00	6.00	0.00	0.00
15055	2	72.00	7.00	0.00	0.00
15061	3	88.00	6.00	0.00	0.00
15065	2	72.00	7.00	0.00	0.00
15071	3	88.00	6.00	0.00	0.00
15075	2	72.00	7.00	0.00	0.00
15081	3	88.00	6.00	0.00	0.00
15085	2	76.6	0	0.00	0.00
15093	2	87.5	0	0.00	0.00
15102	3	89.00	5.00	0.00	0.00
15111	3	88.00	6.00	0.00	0.00
15115	1	53	0	0.00	0.00
15124	4+	125.00	5.00	0.00	0.00

## Description of project

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

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

Common area	Floor area (m <sup>2</sup> )	Common area	Floor area (m <sup>2</sup> )	Common area	Floor area (m <sup>2</sup> )
Car park area	11023.80	Switch room	45.50	Garbage room	252.40
Plant or service room	288.10	Ground floor lobby type	143.50	Hallway/lobby type	1556.00

### Common areas of unit building - Area 13

Common area	Floor area (m <sup>2</sup> )	Common area	Floor area (m <sup>2</sup> )
Lift car (No. 1)	0.00	Lift car (No. 2)	0.00

### Common areas of unit building - Area 14

Common area	Floor area (m <sup>2</sup> )	Common area	Floor area (m <sup>2</sup> )
Lift car (No. 3)	0.00	Lift car (No. 4)	0.00

### Common areas of unit building - Area 15

Common area	Floor area (m <sup>2</sup> )	Common area	Floor area (m <sup>2</sup> )
Lift car (No. 5)	-	Lift car (No. 6)	0.00

# Schedule of BASIX commitments

## 1. Commitments for Residential flat buildings - Area 13

### (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 - Area 14

### (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 - Area 15

### (a) Dwellings

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

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

- (i) Water
- (ii) Energy

4. Commitments for single dwelling houses

5. Commitments for multi-dwelling houses

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

(a) Common areas and central systems/facilities

(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 - Area 13

#### (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: <div style="margin-left: 20px;">(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</div> <div style="margin-left: 20px;">(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.</div>		✓ ✓	✓ ✓
(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
13096, 13106, 13116	3 star (> 4.5 but <= 6 L/min)	4 star	4 star	5 star	-	no washing machine taps	4 star	-	-	-	-	-	-	-
All other dwellings	3 star (> 4.5 but <= 6 L/min)	4 star	4 star	5 star	-	no washing machine taps	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
All dwellings	No alternative water supply	-	-	-	-	-	-	-
All dwellings	No alternative water supply	-	-	-	-	-	-	-

(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.		✓	✓

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

	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 (No. 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 diningroom	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
13094, 13104, 13114	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	2(dedicated)	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	no
13096, 13106, 13116	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	3(dedicated)	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	no
13035, 13036, 13037, 13121	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	4	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-
13084, 13085, 13086, 13093, 13095, 13103, 13105, 13113, 13115, 13122, 13123, 13124	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	3	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-
13031, 13041, 13051, 13053, 13061, 13063, 13071, 13073, 13081, 13083, 13091, 13101, 13111	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1(dedicated)	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-



	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 diningroom	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
All other dwellings	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	2(dedicated)	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
13096, 13106, 13116	-	-	-	-	gas cooktop & electric oven	not specified	-	4 star	not specified	3 star	-	-
All other dwellings	-	-	-	-	gas cooktop & electric oven	not specified	-	4 star	not specified	3 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.		✓	

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

	Thermal loads	
Dwelling no.	Area adjusted heating load (in MJ/m <sup>2</sup> /yr)	Area adjusted cooling load (in MJ/m <sup>2</sup> /yr)
13031	45.10	23.40
13032	29.10	18.00
13033	19.90	19.30
13034	21.20	27.80
13035	16.70	26.40
13036	22.70	22.10
13037	12.60	25.90
13042	32.80	14.70
13043	15.80	17.40
13044	17.50	23.60
13052	30.20	16.10
13053	33.30	25.40
13054	16.40	16.90
13057	10.00	23.90
13058	28.90	18.60
13061	44.70	19.80
13062	30.40	16.60
13063	33.60	26.30
13064	16.80	16.90

	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)
13067	10.30	23.80
13068	29.60	18.10
13071	44.20	20.40
13072	30.50	16.10
13073	33.80	25.90
13074	17.10	16.90
13077	10.70	23.50
13078	30.10	18.40
13081	43.60	22.20
13082	30.40	17.40
13083	39.30	24.70
13084	7.60	18.40
13085	15.20	17.20
13086	9.00	15.60
13091	42.70	22.30
13092	31.20	18.30
13093	22.40	28.90
13094	14.80	15.70
13095	8.60	16.60
13101	41.40	22.90
13102	30.90	18.40
13103	22.50	28.50
13104	15.00	15.20
13105	8.50	17.70
13111	40.10	23.70
13112	30.50	19.00
13113	22.60	28.60
13114	15.20	15.00
13115	7.90	18.30
13121	20.00	27.80
13122	26.60	24.40

	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)
13123	18.60	13.30
13124	7.30	17.00
13041, 13051	45.10	23.30
13055, 13056	18.00	22.70
13065, 13066	18.40	22.20
13075, 13076	18.90	22.20
All other dwellings	9	15.6

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

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

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

Central energy systems	Type	Specification
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 16
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 16
Central hot water system (No. 1)	gas-fired storage (manifolded)	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)

## 2. Commitments for Residential flat buildings - Area 14

### (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 (> 4.5 but <= 6 L/min)	4 star	4 star	5 star	-	no washing	4 star	-	-	-	-	-	-	-

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

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
All dwellings	No alternative water supply	-	-	-	-	-	-	-
All dwellings	No alternative water supply	-	-	-	-	-	-	-

(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 (No. 2)	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 diningroom	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
14054	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	no

	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 diningroom	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
14055, 14101, 14105	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	3	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	no
14004, 14111, 14112, 14113	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	4	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-
14066, 14076, 14086, 14096	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1(dedicated)	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-
14044, 14045, 14064, 14074, 14084, 14094, 14104	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	2	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	no
14001, 14002, 14003, 14021, 14024, 14025, 14034, 14035, 14052	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	3	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-
All other dwellings	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	2	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/ oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	not specified	-	4 star	not specified	3 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)
14001	43.50	6.20
14002	20.80	21.10
14003	29.10	20.00
14004	35.20	18.80
14005	27.00	14.00
14021	25.40	18.40
14022	10.70	17.30
14023	12.50	17.70
14024	10.40	23.30
14025	27.30	24.40
14031	22.30	20.80
14032	11.00	17.90
14033	12.90	17.20
14034	10.70	23.00
14035	29.40	22.40
14036	31.10	19.40
14041	26.50	18.90
14042	14.10	13.10
14043	16.00	12.30
14044	13.10	19.10
14045	33.20	16.30
14046	35.30	16.70
14051	27.00	19.80
14052	5.20	28.10
14054	11.70	20.90
14055	33.80	16.00
14056	35.50	17.90
14061	24.20	10.90
14062	11.90	25.00
14064	29.60	18.60
14065	38.40	16.40

	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)
14066	29.40	19.00
14071	24.20	11.00
14072	12.30	24.60
14074	30.10	18.40
14075	38.50	17.50
14076	29.00	20.30
14081	24.10	11.80
14082	12.70	24.10
14084	30.70	18.20
14085	37.20	18.20
14086	26.90	22.00
14091	23.90	12.60
14092	12.90	23.50
14094	31.10	18.20
14095	34.70	19.60
14096	25.20	24.00
14101	23.40	13.90
14102	13.30	23.40
14104	31.60	17.90
14105	32.70	21.60
14111	21.00	20.00
14112	16.70	15.90
All other dwellings	44.10	13.40

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/ BMS
Lift car (No. 3)	-	-	light-emitting diode	connected to lift call button	-
Lift car (No. 4)	-	-	light-emitting diode	connected to lift call button	-

Central energy systems	Type	Specification
Lift (No. 3)	gearless traction with V V V F motor	Number of levels (including basement): 14
Lift (No. 4)	gearless traction with V V V F motor	Number of levels (including basement): 14
Central hot water system (No. 2)	gas-fired storage (manifolded)	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)

### 3. Commitments for Residential flat buildings - Area 15

#### (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 (> 4.5 but <= 6 L/min)	4 star	4 star	5 star	-	no washing	4 star	-	-	-	-	-	-	-



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

	Alternative water source							
Dwelling no.	Alternative water supply systems	Size	Configuration	Landscape connection	Toilet connection (s)	Laundry connection	Pool top-up	Spa top-up
All dwellings	No alternative water supply	-	-	-	-	-	-	-
All dwellings	No alternative water supply	-	-	-	-	-	-	-

(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 (No. 3)	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 diningroom	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
15121, 15123, 15124	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	4	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	-

	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 diningroom	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
15076, 15078, 15084, 15086, 15096, 15106	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	yes
15031, 15032, 15041, 15042, 15051, 15112, 15122	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	3	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	-
15021, 15024, 15025, 15034, 15037, 15044, 15047, 15113	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	-
15054, 15056, 15058, 15063, 15064, 15066, 15068, 15073, 15074	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
15022, 15023, 15033, 15035, 15036, 15043, 15045,	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	2	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	-

	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 diningroom	Each kitchen	All bathrooms/ toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
15046, 15114, 15115												
15052, 15061, 15062, 15071, 15081, 15082, 15083, 15091, 15092, 15101, 15102, 15111	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	3(dedicated)	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	no

	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 diningroom	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
All other dwellings	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	1-phase airconditioning / 4 star (old label)	2(dedicated)	1(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	yes(dedicated)	0	no

	Individual pool		Individual spa		Appliances & other efficiency measures							
Dwelling no.	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	not specified	-	4 star	not specified	3 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.		✓	✓

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
<p>(g) Where there is an in-slab heating or cooling system, the applicant must:</p> <p>(aa) Install insulation with an R-value of not less than 1.0 around the vertical edges of the perimeter of the slab; or</p> <p>(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.</p>	✓	✓	✓
(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)
15021	42.00	20.00
15022	28.50	20.10
15023	24.90	18.90
15024	19.50	19.70
15025	15.60	28.90
15031	27.70	19.50
15032	22.70	24.60
15033	12.50	29.10
15034	13.60	17.00
15035	11.40	13.60
15036	13.80	21.60
15037	27.30	18.40
15041	31.90	16.20
15042	26.60	18.20
15043	15.60	23.20
15044	17.60	14.90
15046	17.20	15.80
15047	32.40	15.30
15051	32.30	16.90
15052	27.20	17.60
15053	16.10	22.90

	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)
15054	18.20	14.40
15056	29.20	24.50
15057	16.80	15.40
15058	33.00	15.20
15061	32.50	18.10
15062	27.70	17.10
15063	16.50	22.90
15064	18.80	14.50
15065	11.30	10.50
15066	29.50	25.60
15067	17.10	15.30
15068	33.10	15.90
15071	32.30	19.60
15072	28.20	16.80
15073	16.90	22.70
15074	19.30	14.10
15075	11.70	10.50
15076	26.70	25.70
15077	17.40	15.10
15078	33.20	16.90
15081	31.30	20.50
15082	27.50	25.30
15083	11.00	29.40
15084	8.30	19.40
15085	35.10	22.40
15086	17.50	15.00
15091	29.20	22.30
15092	28.00	24.90
15093	40.50	29.30
15095	16.80	15.10
15096	31.50	20.80

	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)
15101	28.40	22.80
15102	28.30	24.80
15103	40.90	29.50
15105	16.70	15.00
15106	30.90	20.70
15111	25.70	23.70
15112	28.60	24.50
15113	41.30	29.10
15114	28.30	16.70
15115	16.70	15.20
15121	26.40	25.70
15122	25.00	26.00
15123	14.00	24.00
15124	24.10	22.30
All other dwellings	10.60	11.40



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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/ BMS
Lift car (No. 5)	-	-	light-emitting diode	connected to lift call button	-
Lift car (No. 6)	-	-	light-emitting diode	connected to lift call button	-

Central energy systems	Type	Specification
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 15
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 15
Central hot water system (No. 3)	gas-fired storage (manifolded)	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)

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

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

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

Common area	Showerheads rating	Toilets rating	Taps rating	Clothes washers rating
All common areas	no common facility	4 star	5 star	no common laundry facility

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 1)	-	-	-
Fire sprinkler system (No. 2)	-	-	-
Central water tank - rainwater or stormwater (No. 1)	15000.00	To collect run-off from at least: - 1980 square metres of roof area of buildings in the development - 30 square metres of impervious area in the development - 150 square metres of garden/lawn area in the development - 20 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 126.60 square metres of common landscaped area on the site - car washing in 2 car washing bays on the site

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

	Common area ventilation system		Common area lighting		
Common area	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/ BMS
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	light-emitting diode	motion sensors	-
Switch room	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	-
Garbage room	ventilation exhaust only	-	light-emitting diode	motion sensors	-
Plant or service room	ventilation supply only	thermostatically controlled	light-emitting diode	manual on / manual off	-
Ground floor lobby type	ventilation supply only	time clock or BMS controlled	light-emitting diode	time clock and motion sensors	-
Hallway/lobby type	ventilation supply only	time clock or BMS controlled	light-emitting diode	time clock and motion sensors	-

Central energy systems	Type	Specification
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 52.20 peak kW
Other	-	-

## 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).