

**STRATHFIELD COUNCIL
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86 Centenary Drive, Strathfield – Stage 2

BASIX Report Revision 8

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Project No.28176-SYD-G

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Revision

REVISION	DATE	COMMENT	APPROVED BY
8	20/05/2019	Revised DA Application	NCJ
7	08/08/2018	Revised DA Application	NCJ
6	17/11/2017	Amended DA Application	NCJ
5	09/11/2017	Amended DA Application	ALK
4	18/07/2017	S96 Issue	NCJ
3	29/04/2016	DA Submission (Revision 3)	NCJ
2	22/01/2015	DA Submission (Revised)	NCJ
1	27/08/2015	DA Submission	NCJ
0	26/08/2015	Preliminary for Client Review	NCJ

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Summary of Assessment

Summary of Assessment

Wood & Grieve Engineers have completed a (revised) BASIX Assessment for the proposed Stage 2 multi-residential development (apartments) at 86 Centenary Drive, Strathfield. The assessment has been based upon the Architectural Drawings (16/05/2019) prepared by Urban Link.

In summary, we can confirm the following outcome of the BASIX analysis:

- It has been determined that the proposed development shall achieve a BASIX Certification with the following scores:

	Water	Thermal Comfort	Energy
Required Target	40%	pass	20%
Building A	42%	pass	24%
Building B	41%	pass	25%

Note that the development has been split into two BASIX certificates (Building A & Building B) due to limitations within the BASIX software.

- Detail regarding building services has been prepared via consultation with the relevant project consulting engineers, architect and client.
- Further information regarding the thermal comfort and building fabric specification has been outlined within Section 3.0 of this report.

Introduction

1. Introduction

Wood and Grieve Engineers have completed a (revised) Building Sustainability Index (BASIX) assessment for the proposed Stage 2 multi-residential development (apartments) at 86 Centenary Drive, Strathfield, NSW. Based on information provided to date and the nominated architectural drawings (issued 16/05/2019) the following outcome has been achieved:

	Water	Thermal Comfort	Energy
Required Target	40%	pass	20%
Building A	42%	pass	24%
Building B	41%	pass	25%

Note that the development has been split into two BASIX certificates (Building A & Building B) due to limitations within the BASIX software.

Development Overview

The proposed development includes:

- Building A: 9 storeys with 82 apartments
- Building B: 9 storeys with 96 apartments
- 3 storey underground basement carpark

Design Target

Based on the relevant Local Environmental Plan, Development Control Plan (DCP) – Strathfield Council and the National Construction Code of Australia (NCC), we understand that the project is required to demonstrate BASIX compliance in support of the Revised DA approval.

Building Sustainability Index (BASIX)

BASIX is implemented under the Environmental Planning and Assessment Act and applies to all residential dwelling types within NSW. BASIX forms both part of the development application and building certification process within the state of NSW.

BASIX sets water and greenhouse gas reduction targets relative to the NSW average benchmark for per person potable water consumption & greenhouse gas emissions within the residential sector. BASIX also sets the minimum performance levels for thermal comfort of the dwelling and replaces the NCC Energy Efficiency benchmarks within the state of NSW. Thermal comfort levels are assessed via a simulation method in accordance with the NatHERS House Energy Rating protocol.

Introduction

(NatHERS) Thermal Performance Software

Wood & Grieve Engineers have completed thermal comfort analysis utilising the NCC endorsed FirstRate5 software. The FirstRate5 assessment tool conducts predictive analysis of the thermal performance of a Class 1 or Class 2 facility. FirstRate5 assess proposed buildings fabric on energy loads for heating and cooling. The information required for the FirstRate5 assessment includes:

- Floor Area
- Wall Layouts and Wall Types (including insulation ratings)
- Roof Layouts and Roof Types (including insulation ratings)
- Glazing Layouts and construction types
- Shading details
- Extent of building sealing devices (i.e. door seals, window seals etc.)

FirstRate5 does not include an assessment of building services plant efficiency, the embodied energy of materials or any renewable energy considerations.

Design Documentation

The following assessment is based on all architectural drawings prepared by Urban Link, dated 16/05/2019

- DA1001 – Site
- DA2001 – Basement 3
- DA2002 – Basement 2
- DA2003 – Basement 1
- DA2004 – DA_Ground
- DA2005 – DA_Level 1
- DA2006 – DA_Level 2
- DA2007 – DA_Level 3
- DA2008 – DA_Level 4
- DA2009 – DA_Level 5
- DA2010 – DA_Level 6
- DA2011 – DA_Level 7
- DA2012 – DA_Level 8
- DA2013 – DA_Roof Level
- DA3001 – Building A –Elevation
- DA3002 – Building B –Elevation

Note: Changes to the design drawings and specifications will affect the outcome of this assessment and potentially the certification of the proposed building works.

Thermal Comfort Design Assessment

2. Thermal Comfort Design Assessment

The thermal comfort aspect of this assessment was conducted using the FirstRate5 Thermal Performance Assessment Software, which assesses the thermal performance of a Class 1 or Class 2 dwelling in accordance with the requirements as stated in the BASIX Thermal Comfort Protocol.

Compliance requires that the average area adjusted heating and cooling loads be below the average area adjusted heating and cooling loads calculated by BASIX.

Compliance also requires that the individual dwelling area adjusted heating and cooling loads be below the individual area adjusted heating and cooling loads calculated by BASIX.

Based on the information received to date from Urban Link (including architectural drawings and specification detail noted within this report) the development average area adjusted heating and cooling loads were found to be as noted in the table below.

84 Centenary Drive, Strathfield (Stage 2)	AREA ADJUSTED HEATING LOAD (MJ/m ²)	AREA ADJUSTED COOLING LOAD (MJ/m ²)
BASIX Max. Average	51	45.0
Average – Building A	31	22.6
Average – Building B	26.5	25.6

*Note: A full summary of energy modelling has been provided within Appendix – A.

Energy Modelling Limitations

The energy modelling results obtained from the FirstRate5 software provides an estimate of the base building energy performance only. This estimate is based upon a simplified and idealised version of the building that does not fully comply with the intricacies of a building and its operation. As a result, the energy model represents an interpretation of the potential building performance only. Several dependent factors will affect the actual operational performance of the building, including local climate variation, building occupant behaviour, construction technique and building services commissioning. No guarantee or warranty of building performance in practice can be based on energy modelling results alone.

Design Specification – Building Fabric/Services

3. Design Specification – Building Fabric/Services

<u>Design Specification:</u>
<u>External Walls:</u> A minimum of R2.5 insulation added to Concrete Walls to give a total R-Value of R2.8.
<u>Walls to Internal Corridors:</u> A minimum of R2.0 insulation to partition walls between apartments and corridors or non-conditioned internal zones.
<u>Internal Walls to Adjoining Apartments:</u> As the adjoining apartments are considered conditioned spaces, there is no thermal insulation requirement for these walls. Therefore, the insulation to these walls shall be as per inter-tenancy acoustic requirements.
<u>Ceilings:</u> We have adopted ceiling heights based on the architectural drawings received (2700 mm)
<u>Roof Type:</u> A minimum of R3.0 insulation to be added to all apartments below roofs or where there is an exposed terrace / balcony area above (Total R-value R3.2).
<u>Suspended Floor Slabs:</u> Add R2.0 insulation to underside of suspended concrete slab floors between conditioned spaces and non-conditioned spaces only (i.e. between apartments and basement car parking or balcony zones below apartments)
<u>Windows</u> Fixed Glazing and Operable Windows: The majority of fixed glazing and operable windows have been assumed to be equivalent to a single glazed unit with standard aluminium frames and the following thermal performance: U-Value of 6.04 W/m².K and an SHGC of 0.65 (Clear) The following apartments will require the following thermal performance: Building A (AG02, A701, A801) & Building B (B701, B801) - U-Value of 4.41 W/m².K and an SHGC of 0.39 (Single Glazed Low-E) All windows above have been specified with weather-strips to prevent air infiltration when closed. This is standard compliance with AS2047. Minimum glass thicknesses are to be in accordance with the acoustic report requirements. Note: <i>The thermal performance values for all windows detailed above are for glass and framing system combined.</i>
<u>Floor Coverings</u> The following floor finishes have been specified. Carpet to all bedrooms Timber floor boards to the living/Kitchen spaces; and Ceramic tiles to the bathrooms/wet areas.

Design Specification – Building Fabric/Services

<p><u>Design Specification:</u></p>
<p><u>Air Leakage</u></p> <p>Kitchen Exhaust will be via a ducted range-hood to the external façade or roof.</p> <p>All bathrooms and ensuites exhaust to be via a ducted exhaust fan to external façade or roof.</p> <p>Back-draft dampers must be installed to prevent air infiltration as per BCA requirements</p>
<p><u>Hot Water System</u></p> <p>A centralised gas hot water system (gas boiler) for each apartment block has been specified within the BASIX certificate.</p> <p>Domestic hot water pipework is required to have R0.60 insulation as per NCC requirements.</p>
<p><u>Mechanical Ventilation Systems:</u></p> <p>Common Areas:</p> <p>Basement carpark – Mechanical supply and exhaust with carbon monoxide monitor & VSD fan</p> <p>Garbage rooms – Ventilation exhaust only</p> <p>Services rooms – Ventilation supply only interlocked to light</p> <p>Community rooms – Air conditioning system with time clock or BMS controlled</p> <p>Corridors/Fire Stairs and Personal services rooms – No mechanical ventilation</p> <p>Indoor Pool/Spa – Mechanical supply and exhaust with time clock or BMS controlled</p> <p>Dwellings:</p> <p>Bathroom/Kitchen/Laundry Exhaust – Individual fans, ducted to façade with manual switch</p>
<p><u>Dwelling Air-Conditioning Systems:</u></p> <p>Split system air-conditioning (Single Phase) for all living/kitchen zones with day/night zoning between living rooms and bedrooms.</p> <p>Minimum EER ratings – Cooling 3.0-3.5, Heating 3.0-3.5 kW</p>
<p><u>Lighting:</u></p> <p>Common Areas</p> <p>Compact fluorescent or LED lighting with motion sensor control</p> <p>Dwellings</p> <p>Dedicated Fluorescent or LED Lamps</p>
<p><u>Appliance Specifications:</u></p> <p>The following minimum energy performance specifications have been included within the BASIX assessment:</p> <p>Energy Star Ratings:</p> <p>Gas cooktop and electric ovens to all dwellings.</p> <p>Dishwasher – Not specified</p> <p>Clothes Dryer – Not specified</p>

Design Specification – Building Fabric/Services

Design Specification:

Clothes Washer – Not specified

Refrigerator – Not specified

WELS Water Efficiency Ratings:

Dishwasher - Min. 4 Star rated

Fixtures & Fittings:

We note that fixtures with the following WELS ratings have been included in the BASIX Assessment:

Common Areas (as applicable) & all dwellings:

3 Star WELS rated Showerheads (>4.6 but ≤ 6 L/min)

5 Star WELS Toilets

6 Star WELS Kitchen taps

6 Star WELS Bathroom taps

We note a reduction in the quality of these appliances will affect the water aspect of the BASIX rating.

Design Specification – Building Fabric/Services

BASIX Certification Detail

Project Summary	
Project Name	84 Centenary Drive Stage 2
Street Address	84 Centenary Drive, Strathfield
Local Government Area	Strathfield Council
Plan Type / Number	Existing Lots 1 & 2 DP854298 & Lot 1 in DP130917
Lot No#	Proposed Lot 301
Section No#	-
No. of Residential Buildings	2
No. of units in Residential Flat Buildings	-
No. of multi-dwelling houses	178
No. of single dwelling houses	-
BASIX Certificate No#	877810M_04 658364M_07
Project Score	
Water	42% & 41%
Thermal Comfort	Pass
Energy	24% & 25%

Appendix A - Energy Modelling Results

Appendix A - Energy Modelling Results

84 Centenary Drive, Strathfield

First Rate Energy Rating Assessment

JOB NO. 28176-2SYD-G (Stage 2) **Building A**
REV 8

CLIMATE ZONE
56

AVERAGE ENERGY INTENSITY (MJ/m ²)	AVERAGE STAR RATING
53.8	5.8

No. Of Rated Apartment
82.0

Total Number of Apartments
82

Zone	Apt No.	Apt Type	Beds	A/C Area	Non A/C	Heating - MJ/m ²	Cooling - MJ/m ²	Total Energy - MJ	Star Rating
Ground Floor	AG01	AG01	1	44.70	4.10	7.20	58.20	2923.38	5.0
	AG02	AG02	2	70.00	0.00	10.40	22.60	2310.00	7.4
	AG03	AG03	1	58.20	0.00	13.10	19.30	1885.68	7.4
	AG04	AG04	1	58.20	0.00	14.50	16.60	1810.02	7.5
	AG05	AG05	2	70.00	0.00	9.00	22.30	2191.00	7.5
	AG06	AG06	2	80.40	0.00	18.70	29.90	3907.44	6.1
Level 1	A101	A101	2	71.00	0.00	45.60	27.70	5204.30	4.5
	A102	A102	2	70.80	0.00	52.10	25.30	5479.92	4.4
	A103	A103	2	70.70	0.00	8.80	27.40	2559.34	7.2
	A104	A104	2	70.00	0.00	6.80	24.30	2177.00	7.5
	A105	A105	1	64.30	0.00	57.40	13.80	4578.16	4.7
	A106	A106	1	64.30	0.00	55.10	13.40	4404.55	4.8
	A107	A107	2	67.60	0.00	7.90	24.30	2176.72	7.4
	A108	A108	2	70.00	0.00	8.20	23.20	2198.00	7.4
	A109	A109	2	79.50	0.00	25.80	44.20	5565.00	4.7
	A110	A110	2	70.50	0.00	51.60	16.10	4772.85	4.9
	A111	A111	1	44.50	0.00	51.70	18.50	3123.90	4.7
Level 2	A201	A201	2	70.90	0.00	46.90	26.10	5175.70	4.6
	A202	A202	2	70.90	0.00	43.60	47.70	6473.17	3.8
	A203	A203	2	70.70	0.00	9.40	26.20	2516.92	7.2
	A204	A204	2	70.00	0.00	6.90	24.10	2170.00	7.5
	A205	A205	2	79.10	0.00	22.80	14.40	2942.52	7.1
	A206	A206	2	79.10	0.00	23.20	14.40	2974.16	7.0
	A207	A207	2	70.10	0.00	7.50	22.40	2095.99	7.6
	A208	A208	2	70.00	0.00	8.20	23.20	2198.00	7.5
	A209	A209	2	79.50	0.00	26.70	44.50	5660.40	4.7
	A210	A210	2	70.50	0.00	37.70	30.10	4779.90	4.8
	A211	A211	1	44.50	0.00	26.90	14.80	1855.65	6.7
Level 3	A301	A301	2	70.90	0.00	51.00	18.20	4906.28	4.8
	A302	A302	2	70.90	0.00	49.10	31.40	5707.45	4.2
	A303	A303	2	70.70	0.00	11.50	21.30	2318.96	7.4
	A304	A304	2	70.00	0.00	9.00	20.00	2030.00	7.7
	A305	A305	2	79.10	0.00	25.90	12.00	2997.89	7.0
	A306	A306	2	79.10	0.00	26.40	11.90	3029.53	7.0
	A307	A307	2	70.10	0.00	9.80	18.80	2004.86	7.7
	A308	A308	2	70.00	0.00	10.30	19.30	2072.00	7.6
	A309	A309	2	79.50	0.00	30.90	33.30	5103.90	5.1
	A310	A310	2	70.50	0.00	41.70	26.20	4786.95	4.8
	A311	A311	1	44.50	0.00	30.20	12.00	1877.90	6.7
Level 4	A401	A401	2	70.90	0.00	55.80	16.90	5154.43	4.6
	A402	A402	2	70.80	0.00	52.70	31.70	5975.52	4.1
	A403	A403	2	70.70	0.00	16.00	21.50	2651.25	7.1
	A404	A404	2	69.60	0.00	11.00	21.30	2248.08	7.4
	A405	A405	2	79.00	0.00	26.50	12.30	3065.20	6.9
	A406	A406	2	79.00	0.00	27.30	12.00	3104.70	6.9
	A407	A407	2	69.80	0.00	11.10	19.20	2114.94	7.6
	A408	A408	2	69.90	0.00	11.60	19.90	2201.85	7.5
	A409	A409	2	79.50	0.00	33.70	32.10	5231.10	5.0
	A410	A410	2	70.50	0.00	42.90	25.20	4786.95	4.8
	A411	A411	1	44.40	0.00	56.50	11.40	2903.76	4.8
Level 5	A501	A501	1	51.60	0.00	43.80	14.70	3018.60	5.4
	A502	A502	2	86.00	0.00	35.70	29.70	5624.40	5.0
	A503	A503	2	97.50	0.00	48.30	13.20	5996.25	5.2
	A504	A504	2	78.90	0.00	23.80	14.60	3029.76	7.0
	A505	A505	2	78.90	0.00	26.50	9.40	2832.51	7.2
	A506	A506	2	81.80	0.00	31.10	9.80	3345.62	6.8
	A507	A507	2	80.50	0.00	46.30	13.10	4781.70	5.4
	A508	A508	2	76.70	0.00	30.80	36.30	5146.57	4.9
	A509	A509	1	48.20	0.00	50.30	17.00	3243.86	4.9
Level 6	A601	A601	1	51.60	0.00	47.40	15.20	3230.16	5.2
	A602	A602	2	86.00	0.00	41.80	48.90	7800.20	3.9
	A603	A603	2	97.50	0.00	48.90	13.40	6074.25	5.2
	A604	A604	2	78.90	0.00	25.20	14.70	3148.11	6.9
	A605	A605	2	78.90	0.00	27.90	9.70	2966.64	7.1
	A606	A606	2	81.80	0.00	32.70	9.80	3476.50	6.7
	A607	A607	2	80.50	0.00	47.60	13.70	4934.65	5.2
	A608	A608	2	76.60	0.00	32.40	35.70	5216.46	4.8
	A609	A609	1	48.20	0.00	51.80	17.20	3325.80	4.8
Level 7	A701	A701	2	70.00	0.00	42.30	29.80	5047.00	4.6
	A702	A702	2	75.50	0.00	15.90	30.00	3465.45	6.4
	A703	A703	2	70.60	0.00	24.60	21.30	3240.54	6.4
	A704	A704	2	83.70	0.00	25.70	17.50	3615.84	6.6
	A705	A705	2	81.20	0.00	14.80	23.10	3077.48	7.0
	A706	A706	3	102.90	0.00	38.70	29.70	8087.94	4.8
	A707	A707	1	62.50	0.00	64.80	13.80	5175.00	4.3
Level 8	A801	A801	2	70.00	0.00	53.10	29.70	5796.00	4.2
	A802	A802	2	75.50	0.00	28.60	30.30	4446.95	5.4
	A803	A803	2	70.60	0.00	35.10	21.20	3974.78	5.6
	A804	A804	2	83.70	0.00	35.40	18.70	4528.17	5.7
	A805	A805	2	81.20	0.00	24.70	25.60	4084.36	6.0
	A806	A806	3	102.90	0.00	48.50	32.20	8304.03	4.2
	A807	A807	1	62.50	0.00	65.30	17.80	5193.75	4.1

84 Centenary Drive, Strathfield

First Rate Energy Rating Assessment

JOB NO. 28176-2-SYD-G (Building B)
Rev 8

CLIMATE ZONE
56

AVERAGE ENERGY INTENSITY (MJ/m ²)	AVERAGE STAR RATING	MINIMUM STAR RATING	No. Of Rated Apartment
51.9	5.9	4.0	

Level	Apt No.	Apt Type	Bedrooms	A/C Area (m ²)	Non A/C Area (m ²)	Heating - MJ/m ²	Cooling - MJ/m ²	Energy Rating - MJ/m ²	Star Rating
Ground Floor	BG01	BG01	1	41.4	0.0	40.30	45.20	85.5	4.0
	BG02	BG02	3	98.5	0.0	26.10	31.10	57.2	5.5
	BG03	BG03	2	70.0	0.0	8.70	33.10	41.8	6.7
	BG04	BG04	2	70.0	0.0	10.80	35.80	46.6	6.3
	BG05	BG05	1	56.1	0.0	24.60	25.60	50.2	6.0
	BG06	BG06	1	56.1	0.0	25.80	20.00	45.8	6.4
	BG07	BG07	2	70.0	0.0	12.00	24.90	36.9	7.1
	BG08	BG08	2	70.0	0.0	11.90	30.70	42.6	6.7
	BG09	BG09	3	98.5	0.0	7.00	32.20	39.2	6.9
	BG10	BG10	1	41.4	0.0	38.90	32.00	70.9	4.7
	BG11	BG11	2	93.5	0.0	38.70	35.90	74.6	4.5
	BG12	BG12	1	53.6	0.0	37.70	26.60	64.3	5.1
Level 1	B101	B101	2	71.0	0.0	35.90	26.20	62.1	5.2
	B102	B102	2	70.7	0.0	14.70	44.00	58.7	5.4
	B103	B103	2	70.7	0.0	8.00	35.40	43.4	6.6
	B104	B104	2	70.0	0.0	5.70	32.90	38.6	7.0
	B105	B105	2	78.8	0.0	19.90	30.70	50.6	6.0
	B106	B106	2	78.8	0.0	22.00	22.20	44.2	6.5
	B107	B107	2	70.1	0.0	6.00	31.90	37.9	7.0
	B108	B108	2	70.0	0.0	6.60	36.70	43.3	6.6
	B109	B109	2	81.2	0.0	4.90	32.20	37.1	7.1
	B110	B110	2	110.0	0.0	41.60	28.40	70.0	4.7
	B111	B111	2	93.5	0.0	34.20	41.20	75.4	4.4
	B112	B112	1	53.5	0.0	31.70	18.50	50.2	6.0
Level 2	B201	B201	2	71.0	0.0	41.70	31.50	50.2	4.6
	B202	B202	2	70.7	0.0	34.00	48.10	73.2	4.2
	B203	B203	2	70.7	0.0	8.80	34.50	82.1	6.6
	B204	B204	2	70.0	0.0	6.60	30.90	43.3	7.1
	B205	B205	2	78.8	0.0	21.20	24.30	45.5	6.4
	B206	B206	2	78.8	0.0	22.30	22.10	44.4	6.5
	B207	B207	2	70.1	0.0	5.40	20.10	25.5	8.0
	B208	B208	2	70.0	0.0	6.20	37.10	43.3	6.6
	B209	B209	2	81.2	0.0	6.30	20.40	26.7	7.9
	B210	B210	2	110.0	0.0	40.60	25.70	66.3	4.9
	B211	B211	2	93.8	0.0	34.80	38.70	73.5	4.5
	B212	B212	1	53.4	0.0	33.20	18.00	51.2	5.9
Level 3	B301	B301	2	71.0	0.0	42.50	30.80	73.3	4.5
	B302	B302	2	70.7	0.0	34.90	46.10	37.2	4.2
	B303	B303	2	70.7	0.0	9.20	33.10	42.3	6.7
	B304	B304	2	70.0	0.0	7.00	30.20	37.2	7.1
	B305	B305	2	78.8	0.0	21.90	24.40	46.3	6.3
	B306	B306	2	78.8	0.0	23.00	21.70	44.7	6.5
	B307	B307	2	70.1	0.0	5.70	19.90	25.6	8.0
	B308	B308	2	70.0	0.0	6.50	36.30	42.8	6.6
	B309	B309	2	81.2	0.0	8.60	32.30	40.9	6.8
	B310	B310	2	110.0	0.0	41.60	24.40	66.0	5.0
	B311	B311	2	93.8	0.0	35.70	37.10	72.8	4.6
	B312	B312	1	53.4	0.0	34.00	17.10	51.1	5.9
Level 4	B401	B401	2	71.0	0.0	46.30	22.10	68.4	4.8
	B402	B402	2	70.7	0.0	40.90	32.90	73.8	4.5
	B403	B403	2	70.7	0.0	10.70	33.90	44.6	6.5
	B404	B404	2	70.0	0.0	13.00	29.80	42.8	6.6
	B405	B405	2	78.8	0.0	24.80	20.30	45.1	6.4
	B406	B406	2	78.8	0.0	25.90	17.70	43.6	6.6
	B407	B407	2	70.1	0.0	7.70	18.20	25.9	8.0
	B408	B408	2	70.0	0.0	8.20	28.30	36.5	7.1
	B409	B409	2	81.2	0.0	11.00	26.70	37.7	7.0
	B410	B410	2	110.0	0.0	37.70	30.10	67.8	4.9
	B411	B411	2	93.8	0.0	39.20	26.60	65.8	5.0
	B412	B412	1	53.4	0.0	37.50	13.40	50.9	6.0
Level 5	B501	B501	1	51.6	0.0	46.00	18.80	64.8	5.0
	B502	B502	2	85.5	0.0	28.30	32.40	60.7	5.3
	B503	B503	2	97.5	0.0	40.10	14.30	54.4	5.7
	B504	B504	2	78.9	0.0	23.70	16.40	40.1	6.9
	B505	B505	2	79.0	0.0	22.90	13.30	36.2	7.2
	B506	B506	2	81.8	0.0	25.00	11.20	36.2	7.2
	B507	B507	3	100.7	0.0	5.10	23.70	28.8	7.7
	B508	B508	3	111.0	0.0	38.20	15.80	54.0	5.7
	B509	B509	2	93.8	0.0	33.10	25.10	58.2	5.4
	B510	B510	1	53.4	0.0	39.60	13.30	52.9	5.8
Level 6	B601	B601	1	51.6	0.0	49.30	20.00	69.3	4.8
	B602	B602	2	85.5	0.0	44.50	18.70	63.2	5.1
	B603	B603	2	97.5	0.0	42.60	11.80	54.4	5.7
	B604	B604	2	78.9	0.0	25.10	16.70	41.8	6.7
	B605	B605	2	79.0	0.0	24.50	12.60	37.1	7.1
	B606	B606	2	81.8	0.0	27.20	10.90	38.1	7.0
	B607	B607	3	100.7	0.0	5.20	23.20	28.4	7.8
	B608	B608	3	111.0	0.0	38.70	15.20	53.9	5.7
	B609	B609	2	93.8	0.0	35.10	26.20	61.3	5.2
	B610	B610	1	53.4	0.0	40.10	13.20	53.3	5.8
Level 7	B701	B701	2	70.4	0.0	59.70	22.20	81.9	4.5
	B702	B702	3	89.1	0.0	14.90	20.60	35.5	7.2
	B703	B703	3	94.0	0.0	23.50	24.20	47.7	6.2
	B704	B704	2	83.7	0.0	24.60	20.50	45.1	6.4
	B705	B705	2	83.3	0.0	14.70	35.80	50.5	6.0
	B706	B706	3	99.1	0.0	21.20	18.10	39.3	6.9
	B707	B707	3	93.1	0.0	36.60	16.00	52.6	5.8



	B708	B708	1	62.4	0.0	56.00	14.90	70.9	4.7
Level 8	B801	B801	2	70.4	0.0	65.10	21.50	86.6	4.0
	B802	B802	3	89.1	0.0	24.60	21.40	46.0	6.4
	B803	B803	3	94.0	0.0	34.10	23.60	57.7	5.5
	B804	B804	2	83.7	0.0	34.00	19.40	53.4	5.8
	B805	B805	2	83.3	0.0	24.10	37.10	61.2	5.2
	B806	B806	3	99.1	0.0	31.00	21.20	52.2	5.9
	B807	B807	3	93.1	0.0	46.70	18.90	65.6	5.0
	B808	B808	1	62.4	0.0	63.90	15.50	79.4	4.3

7509.5

Appendix B – BASIX Certificates

Appendix B – BASIX Certificates

BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 877810M_05

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 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

This certificate has been assessed against the energy and thermal comfort requirements in place prior to 1 July 2017. It is conditional on being accompanied by a building contract dated on or before 31 Dec 2017 as detailed on the last page of this certificate.

This certificate is a revision of certificate number 877810M lodged with the consent authority or certifier on 13 November 2017 with application DA2015/100.




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: Monday, 20 May 2019

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



Project summary		
Project name	84 Centenary Drive Building A_05	
Street address	84 Centenary Drive Strathfield 2135	
Local Government Area	Strathfield Municipal Council	
Plan type and plan number	deposited 854298	
Lot no.	1	
Section no.	-	
No. of residential flat buildings	1	
No. of units in residential flat buildings	82	
No. of multi-dwelling houses	0	
No. of single dwelling houses	0	
Project score		
Water	 42	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 24	Target 20

Certificate Prepared by

Name / Company Name: Wood and Grieve Engineers

ABN (if applicable): 97137999609

Description of project

Project address

Project name	84 Centenary Drive Building A_05
Street address	84 Centenary Drive Strathfield 2135
Local Government Area	Strathfield Municipal Council
Plan type and plan number	deposited 854298
Lot no.	1
Section no.	-

Project type

No. of residential flat buildings	1
No. of units in residential flat buildings	82
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details

Site area (m ²)	3528
Roof area (m ²)	825
Non-residential floor area (m ²)	0.0
Residential car spaces	156
Non-residential car spaces	0

Common area landscape

Common area lawn (m ²)	428.0
Common area garden (m ²)	1001.0
Area of indigenous or low water use species (m ²)	0.0

Assessor details

Assessor number	VIC/13/1513
Certificate number	15130030
Climate zone	56

Project score

Water	✓ 42	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 24	Target 20

Description of project

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

Residential flat buildings - Building A, 82 dwellings, 9 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
A101	2	71.0	0.0	0.0	0.0
A105	1	64.3	0.0	0.0	0.0
A109	2	79.5	0.0	0.0	0.0
A202	2	70.9	0.0	0.0	0.0
A206	2	79.1	0.0	0.0	0.0
A210	2	70.5	0.0	0.0	0.0
A303	2	70.7	0.0	0.0	0.0
A307	2	70.1	0.0	0.0	0.0
A311	1	44.5	0.0	0.0	0.0
A404	2	69.6	0.0	0.0	0.0
A408	2	69.9	0.0	0.0	0.0
A501	1	51.6	0.0	0.0	0.0
A505	2	78.9	0.0	0.0	0.0
A509	1	48.2	0.0	0.0	0.0
A604	2	78.9	0.0	0.0	0.0
A608	2	76.6	0.0	0.0	0.0
A703	2	70.6	0.0	0.0	0.0
A707	1	62.5	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
A102	2	70.8	0.0	0.0	0.0
A106	1	64.3	0.0	0.0	0.0
A110	2	70.5	0.0	0.0	0.0
A203	2	70.7	0.0	0.0	0.0
A207	2	70.1	0.0	0.0	0.0
A211	1	44.5	0.0	0.0	0.0
A304	2	70.0	0.0	0.0	0.0
A308	2	70.0	0.0	0.0	0.0
A401	2	70.9	0.0	0.0	0.0
A405	2	79.0	0.0	0.0	0.0
A409	2	79.5	0.0	0.0	0.0
A502	2	86.0	0.0	0.0	0.0
A506	2	81.8	0.0	0.0	0.0
A601	1	51.6	0.0	0.0	0.0
A605	2	78.9	0.0	0.0	0.0
A609	1	48.2	0.0	0.0	0.0
A704	2	83.7	0.0	0.0	0.0
A801	2	70.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
A103	2	70.7	0.0	0.0	0.0
A107	2	67.6	0.0	0.0	0.0
A111	1	44.5	0.0	0.0	0.0
A204	2	70.0	0.0	0.0	0.0
A208	2	70.0	0.0	0.0	0.0
A301	2	70.9	0.0	0.0	0.0
A305	2	79.1	0.0	0.0	0.0
A309	2	79.5	0.0	0.0	0.0
A402	2	70.8	0.0	0.0	0.0
A406	2	79.0	0.0	0.0	0.0
A410	2	70.5	0.0	0.0	0.0
A503	2	97.5	0.0	0.0	0.0
A507	2	80.5	0.0	0.0	0.0
A602	2	86.0	0.0	0.0	0.0
A606	2	81.8	0.0	0.0	0.0
A701	2	70.0	0.0	0.0	0.0
A705	2	81.2	0.0	0.0	0.0
A802	2	75.5	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
A104	2	70.0	0.0	0.0	0.0
A108	2	70.0	0.0	0.0	0.0
A201	2	70.9	0.0	0.0	0.0
A205	2	79.1	0.0	0.0	0.0
A209	2	79.5	0.0	0.0	0.0
A302	2	70.9	0.0	0.0	0.0
A306	2	79.1	0.0	0.0	0.0
A310	2	70.5	0.0	0.0	0.0
A403	2	70.7	0.0	0.0	0.0
A407	2	69.8	0.0	0.0	0.0
A411	1	44.4	0.0	0.0	0.0
A504	2	78.9	0.0	0.0	0.0
A508	2	76.7	0.0	0.0	0.0
A603	2	97.5	0.0	0.0	0.0
A607	2	80.5	0.0	0.0	0.0
A702	2	75.5	0.0	0.0	0.0
A706	3	102.9	0.0	0.0	0.0
A803	2	70.6	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
A804	2	83.7	0.0	0.0	0.0
AG01	1	44.7	0.0	0.0	0.0
AG05	2	70.0	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
A805	2	81.2	0.0	0.0	0.0
AG02	2	70.0	0.0	0.0	0.0
AG06	3	80.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
A806	3	102.9	0.0	0.0	0.0
AG03	1	58.2	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
A807	1	62.5	0.0	0.0	0.0
AG04	1	58.2	0.0	0.0	0.0

Description of project

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

Common areas of unit building - Building A

Common area	Floor area (m ²)
Lift car (No.1)	-
Communal Area	160.0

Common area	Floor area (m ²)
Lift car (No.2)	-
Hallways	495.0

Common area	Floor area (m ²)
Fire Stairs	235.5

Common areas of the development (non-building specific)

Common area	Floor area (m ²)
Car park area	3000.0

Common area	Floor area (m ²)
Garbage room	196.8

Common area	Floor area (m ²)
Store	150.0

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 multi-dwelling houses

3. Commitments for single dwelling houses

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

- (i) Water
- (ii) Energy

Schedule of BASIX commitments

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

1. Commitments for Residential flat buildings - Building A

(a) Dwellings

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

Fixtures						Appliances		Individual pool				Individual spa		
Dwelling no.	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	3 star (> 4.5 but <= 6 L/min)	5 star	6 star	6 star	no	-	4 star	-	-	-	-	-	-	-

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

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

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

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
A806, AG06	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.0 - 3.5	-	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
A105, A106, A111, A211, A311, A411, A501, A509, A601, A609, A707, A807, AG01, AG03, AG04	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.0 - 3.5	-	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.0 - 3.5	-	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

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

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
A101	45.6	27.7
A102	52.1	25.3
A103	8.8	27.4
A104	6.8	24.3
A105	57.4	13.8

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m ² /yr)	Area adjusted cooling load (in mJ/m ² /yr)
A106	55.1	13.4
A107	7.9	24.3
A109	25.8	44.2
A110	51.6	16.1
A111	51.7	18.5
A201	46.9	26.1
A202	43.6	47.7
A203	9.4	26.2
A204	6.9	24.1
A205	22.8	14.4
A206	23.2	14.4
A207	7.5	22.4
A209	26.7	44.5
A210	37.7	30.1
A211	26.9	14.8
A301	51.0	18.2
A302	49.1	31.4
A303	11.5	21.3
A304	9.0	20.0
A305	25.9	12.0
A306	26.4	11.9
A307	9.8	18.8
A308	10.3	19.3
A309	30.9	33.3
A310	41.7	26.2
A311	30.2	12.0
A401	55.8	16.9

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
A402	52.7	31.7
A403	16.0	21.5
A404	11.0	21.3
A405	26.5	12.3
A406	27.3	12.0
A407	11.1	19.2
A408	11.6	19.9
A409	33.7	32.1
A410	42.9	25.2
A411	56.5	11.4
A501	43.8	14.7
A502	35.7	29.7
A503	48.3	13.2
A504	23.8	14.6
A505	26.5	9.4
A506	31.1	9.8
A507	46.3	13.1
A508	30.8	36.3
A509	50.3	17.0
A601	47.4	15.2
A602	41.8	48.9
A603	48.9	13.4
A604	25.2	14.7
A605	27.9	9.7
A606	32.7	9.8
A607	47.6	13.7
A608	32.4	35.7

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
A609	51.8	17.2
A701	42.3	29.8
A702	15.9	30.0
A703	24.6	21.3
A704	25.7	17.5
A705	14.8	23.1
A706	38.7	29.7
A707	64.8	13.8
A801	53.1	29.7
A802	28.6	30.3
A803	35.1	21.2
A804	35.4	18.7
A805	24.7	25.6
A806	48.5	32.2
A807	65.3	17.8
AG01	7.2	58.2
AG02	10.4	22.6
AG03	13.1	19.3
AG04	14.5	16.6
AG05	9.0	22.3
AG06	18.7	29.9
All other dwellings	8.2	23.2

(b) Common areas and central systems/facilities

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

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

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

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No.1)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No.2)	-	-	light-emitting diode	connected to lift call button	Yes
Fire Stairs	no mechanical ventilation	-	compact fluorescent	motion sensors	Yes
Communal Area	air conditioning system	time clock or BMS controlled	light-emitting diode	motion sensors	Yes
Hallways	no mechanical ventilation	-	light-emitting diode	motion sensors	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)
Lift (No. 1)	gearless traction with V V V F motor	Number of levels (including basement): 13
Lift (No. 2)	gearless traction with V V V F motor	Number of levels (including basement): 13

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

(b) Common areas and central systems/facilities

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

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

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 1)	-	-	-

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

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

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	compact fluorescent	motion sensors	Yes
Garbage room	ventilation exhaust only	-	compact fluorescent	manual on / manual off	Yes
Store	ventilation exhaust only	time clock or BMS controlled	compact fluorescent	manual on / manual off	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).

Building contract information

This BASIX certificate meets the energy target and thermal comfort requirements that were in place prior to 1 July 2017, and is a valid BASIX certificate for the purposes of the Environmental Planning and Assessment Regulation 2000. It is issued on the condition that the project is accompanied by a building contract as defined in the document entitled "BASIX Definitions" dated 06/10/2017, published by the Department, that is signed and dated by the parties named below on or before **31 December 2017**. For information on the eligibility criteria, read the Transitional Arrangements information sheet at www.basix.nsw.gov.au.

Councils and certifiers may view a copy of the contract or other supporting documents by searching for the certificate number in the BASIX administration tool. A copy of the building contract matching the details below must be provided to the councils and certifiers.

NOTE: The street number or lot and DP shown on the front of this certificate may not match the contract details where the land is registered after signing of the contract. Evidence of registration of land parcels, such as a 149 certificate, may be relied on to verify correct land descriptions.

Contract details (as shown on the copy of the contract uploaded to the BASIX website)

Contract value: must be less than \$1.5 million (including GST)

Date signed: must be signed on or before 31 December 2017

Project address

Street: Centenary Drive

Suburb: Strathfield

Postcode: 2135

Local Government Area: Strathfield Municipal Council

Home purchaser details (as shown on contract)

Name(s): Builtcom Properties 5 Pty Ltd

Current address: Suite 3F 470-474 Church St

Suburb: Parramatta

Postcode: 2150

Licensed builder details (as shown on contract)

Name(s): Builtcom Constructions Pty Ltd

Builder's licence number: 290614C

BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 658364M_07

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 06/10/2017 published by the Department. This document is available at www.basix.nsw.gov.au

This certificate is a revision of certificate number 658364M_03 lodged with the consent authority or certifier on 29 April 2016 with application DA2015/100.




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: Monday, 20 May 2019

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



Project summary		
Project name	84 Centenary Drive Stage 2_07	
Street address	84 Centenary Drive Strathfield 2135	
Local Government Area	Strathfield Municipal Council	
Plan type and plan number	deposited DP854298	
Lot no.	1	
Section no.	-	
No. of residential flat buildings	1	
No. of units in residential flat buildings	96	
No. of multi-dwelling houses	0	
No. of single dwelling houses	0	
Project score		
Water	 41	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 25	Target 20

Certificate Prepared by

Name / Company Name: Wood and Grieve Engineers

ABN (if applicable): 97137999609

Description of project

Project address

Project name	84 Centenary Drive Stage 2_07
Street address	84 Centenary Drive Strathfield 2135
Local Government Area	Strathfield Municipal Council
Plan type and plan number	deposited DP854298
Lot no.	1
Section no.	-

Project type

No. of residential flat buildings	1
No. of units in residential flat buildings	96
No. of multi-dwelling houses	0
No. of single dwelling houses	0

Site details

Site area (m ²)	3528
Roof area (m ²)	15
Non-residential floor area (m ²)	0.0
Residential car spaces	156
Non-residential car spaces	0

Common area landscape

Common area lawn (m ²)	428.0
Common area garden (m ²)	1001.0
Area of indigenous or low water use species (m ²)	0.0

Assessor details

Assessor number	BDAV/13/1513
Certificate number	15130030
Climate zone	56

Project score

Water	✓ 41	Target 40
Thermal Comfort	✓ Pass	Target Pass
Energy	✓ 25	Target 20

Description of project

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

Residential flat buildings - Building B, 96 dwellings, 9 storeys above ground

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
B101	2	71.0	0.0	0.0	0.0
B105	2	78.8	0.0	0.0	0.0
B109	2	81.2	0.0	0.0	0.0
B201	2	71.0	0.0	0.0	0.0
B205	2	78.8	0.0	0.0	0.0
B209	2	81.2	0.0	0.0	0.0
B301	2	71.0	0.0	0.0	0.0
B305	2	78.8	0.0	0.0	0.0
B309	2	81.2	0.0	0.0	0.0
B401	2	71.0	0.0	0.0	0.0
B405	2	78.8	0.0	0.0	0.0
B409	2	81.2	0.0	0.0	0.0
B501	1	51.6	0.0	0.0	0.0
B505	2	79.0	0.0	0.0	0.0
B509	2	93.8	0.0	0.0	0.0
B603	2	97.5	0.0	0.0	0.0
B607	3	100.7	0.0	0.0	0.0
B701	2	70.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
B102	2	70.7	0.0	0.0	0.0
B106	2	78.8	0.0	0.0	0.0
B110	2	110.0	0.0	0.0	0.0
B202	2	70.7	0.0	0.0	0.0
B206	2	78.8	0.0	0.0	0.0
B210	2	110.0	0.0	0.0	0.0
B302	2	70.7	0.0	0.0	0.0
B306	2	78.8	0.0	0.0	0.0
B310	2	110.0	0.0	0.0	0.0
B402	2	70.7	0.0	0.0	0.0
B406	2	78.8	0.0	0.0	0.0
B410	2	110.0	0.0	0.0	0.0
B502	2	85.5	0.0	0.0	0.0
B506	2	81.8	0.0	0.0	0.0
B510	1	53.4	0.0	0.0	0.0
B604	2	78.9	0.0	0.0	0.0
B608	3	111.0	0.0	0.0	0.0
B702	3	89.1	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
B103	2	70.7	0.0	0.0	0.0
B107	2	70.1	0.0	0.0	0.0
B111	2	93.5	0.0	0.0	0.0
B203	2	70.7	0.0	0.0	0.0
B207	2	70.1	0.0	0.0	0.0
B211	2	93.8	0.0	0.0	0.0
B303	2	70.7	0.0	0.0	0.0
B307	2	70.1	0.0	0.0	0.0
B311	2	93.8	0.0	0.0	0.0
B403	2	70.7	0.0	0.0	0.0
B407	2	70.1	0.0	0.0	0.0
B411	2	93.8	0.0	0.0	0.0
B503	2	97.5	0.0	0.0	0.0
B507	3	100.7	0.0	0.0	0.0
B601	1	51.6	0.0	0.0	0.0
B605	2	79.0	0.0	0.0	0.0
B609	2	93.8	0.0	0.0	0.0
B703	3	94.0	0.0	95.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
B104	2	70.0	0.0	0.0	0.0
B108	2	70.0	0.0	0.0	0.0
B112	1	53.5	0.0	0.0	0.0
B204	2	70.0	0.0	0.0	0.0
B208	2	70.0	0.0	0.0	0.0
B212	1	53.4	0.0	0.0	0.0
B304	2	70.0	0.0	0.0	0.0
B308	2	70.0	0.0	0.0	0.0
B312	1	53.4	0.0	0.0	0.0
B404	2	70.0	0.0	0.0	0.0
B408	2	70.0	0.0	0.0	0.0
B412	1	53.4	0.0	0.0	0.0
B504	2	78.9	0.0	0.0	0.0
B508	3	111.0	0.0	0.0	0.0
B602	2	85.5	0.0	0.0	0.0
B606	2	81.8	0.0	0.0	0.0
B610	1	53.4	0.0	0.0	0.0
B704	2	83.7	0.0	18.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
B705	2	83.3	0.0	0.0	0.0
B801	2	70.4	0.0	0.0	0.0
B805	2	83.3	0.0	0.0	0.0
BG01	1	41.4	0.0	0.0	0.0
BG05	1	56.1	0.0	0.0	0.0
BG09	3	98.5	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
B706	3	99.1	0.0	0.0	0.0
B802	3	89.1	0.0	0.0	0.0
B806	3	99.1	0.0	0.0	0.0
BG02	3	98.5	0.0	0.0	0.0
BG06	1	56.1	0.0	0.0	0.0
BG10	1	41.4	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
B707	3	93.1	0.0	61.0	0.0
B803	3	94.0	0.0	0.0	0.0
B807	3	93.1	0.0	0.0	0.0
BG03	2	70.0	0.0	0.0	0.0
BG07	2	70.0	0.0	0.0	0.0
BG11	2	93.5	0.0	0.0	0.0

Dwelling no.	No. of bedrooms	Conditioned floor area (m ²)	Unconditioned floor area (m ²)	Area of garden & lawn (m ²)	Indigenous species (min area m ²)
B708	1	62.4	0.0	0.0	0.0
B804	2	83.7	0.0	0.0	0.0
B808	1	62.4	0.0	0.0	0.0
BG04	2	70.0	0.0	0.0	0.0
BG08	2	70.0	0.0	0.0	0.0
BG12	1	53.6	0.0	0.0	0.0

Description of project

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

Common areas of unit building - Building B

Common area	Floor area (m ²)
Lift car (No. 5)	-
Hallway	466.0

Common area	Floor area (m ²)
Lift car (No. 6)	-

Common area	Floor area (m ²)
Fire Stairs	236.7

Common areas of the development (non-building specific)

Common area	Floor area (m ²)
Car park area	8007.0

Common area	Floor area (m ²)
Garbage rooms	196.8

Common area	Floor area (m ²)
Store	650.0

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Building B

(a) Dwellings

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

(b) Common areas and central systems/facilities

- (i) Water
- (ii) Energy

2. Commitments for multi-dwelling houses

3. Commitments for single dwelling houses

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

- (i) Water
- (ii) Energy

Schedule of BASIX commitments

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

1. Commitments for Residential flat buildings - Building 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 (> 4.5 but <= 6 L/min)	5 star	6 star	6 star	no	-	4 star	-	-	-	-	-	-	-

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

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

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

	Hot water	Bathroom ventilation system		Kitchen ventilation system		Laundry ventilation system	
Dwelling no.	Hot water system	Each bathroom	Operation control	Each kitchen	Operation control	Each laundry	Operation control
All dwellings	central hot water system 1	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off	individual fan, ducted to façade or roof	manual switch on/off

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
B507, B508, B607, B608, B702, B703, B706, B707, B802, B803, B806, B807, BG02, BG09	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.0 - 3.5	-	3 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
B112, B212, B312, B412, B501, B510, B601, B610, B708, B808, BG01, BG05, BG06, BG10, BG12	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.0 - 3.5	-	1 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no
All other dwellings	1-phase airconditioning EER 3.0 - 3.5	-	1-phase airconditioning EER 3.0 - 3.5	-	2 (dedicated)	1 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	0	no

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

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
B101	35.9	26.2
B102	14.7	44.0
B103	8.0	35.4
B104	5.7	32.9
B105	19.9	30.7
B106	22.0	22.2
B107	6.0	31.9
B108	6.6	36.7
B109	4.9	32.2
B110	41.6	28.4
B111	34.2	41.2
B112	31.7	18.5
B201	41.7	31.5
B202	34.0	48.1
B203	8.8	34.5
B204	6.6	30.9
B205	21.2	24.3
B206	22.3	22.1
B207	5.4	20.1
B208	6.2	37.1
B209	6.3	20.4
B210	40.6	25.7
B211	34.8	38.7
B212	33.2	18.0
B301	42.5	30.8
B302	34.9	46.1
B303	9.2	33.1

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
B304	7.0	30.2
B305	21.9	24.4
B306	23.0	21.7
B307	5.7	19.9
B308	6.5	36.3
B309	8.6	32.3
B310	41.6	24.4
B311	35.7	37.1
B312	34.0	17.1
B401	46.3	22.1
B402	40.9	32.9
B403	10.7	33.9
B404	13.0	29.8
B405	24.8	20.3
B406	25.9	17.7
B407	7.7	18.2
B408	8.2	28.3
B409	11.0	26.7
B410	37.7	30.1
B411	39.2	26.6
B412	37.5	13.4
B501	46.0	18.8
B502	28.3	32.4
B503	40.1	14.3
B504	23.7	16.4
B505	22.9	13.3
B506	25.0	11.2

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
B507	5.1	23.7
B508	38.2	15.8
B509	33.1	25.1
B510	39.6	13.3
B601	49.3	20.0
B602	44.5	18.7
B603	42.6	11.8
B604	25.1	16.7
B605	24.5	12.6
B606	27.2	10.9
B607	5.2	23.2
B608	38.7	15.2
B609	35.1	26.2
B610	40.1	13.2
B701	59.7	22.3
B702	14.9	20.6
B703	23.5	24.2
B704	24.6	20.5
B705	14.7	35.8
B706	21.2	18.1
B707	36.6	16.0
B708	56.0	14.9
B801	65.1	21.5
B802	24.6	21.4
B803	34.1	23.6
B804	34.0	19.4
B805	24.1	37.1

Dwelling no.	Thermal loads	
	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
B806	31.0	21.2
B807	46.7	18.9
B808	63.9	15.5
BG01	40.3	45.2
BG02	26.1	31.1
BG03	8.7	33.1
BG04	10.8	35.8
BG05	24.6	25.6
BG06	25.8	20.0
BG07	12.0	24.9
BG08	11.9	30.7
BG09	7.0	32.2
BG10	38.9	32.0
BG11	38.7	35.9
All other dwellings	37.7	26.6

(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	no common facility	no common facility	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	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Lift car (No. 5)	-	-	light-emitting diode	connected to lift call button	Yes
Lift car (No. 6)	-	-	light-emitting diode	connected to lift call button	Yes
Fire Stairs	no mechanical ventilation	-	compact fluorescent	motion sensors	Yes
Hallway	no mechanical ventilation	-	light-emitting diode	motion sensors	Yes

Central energy systems	Type	Specification
Central hot water system (No. 1)	gas-fired boiler	Piping insulation (ringmain & supply risers): (a) Piping external to building: R0.6 (~25 mm); (b) Piping internal to building: R0.6 (~25 mm)
Lift (No. 5)	gearless traction with V V V F motor	Number of levels (including basement): 13
Lift (No. 6)	gearless traction with V V V F motor	Number of levels (including basement): 13

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

(b) Common areas and central systems/facilities

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

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

Central systems	Size	Configuration	Connection (to allow for...)
Fire sprinkler system (No. 2)	-	-	-

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

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

Common area	Common area ventilation system		Common area lighting		
	Ventilation system type	Ventilation efficiency measure	Primary type of artificial lighting	Lighting efficiency measure	Lighting control system/BMS
Car park area	ventilation (supply + exhaust)	carbon monoxide monitor + VSD fan	compact fluorescent	motion sensors	Yes
Garbage rooms	ventilation exhaust only	-	compact fluorescent	motion sensors	Yes
Store	ventilation exhaust only	thermostatically controlled	compact fluorescent	manual on / manual off	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).