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LIVING

NatHERS and BASIX Assessment



John O'Brien Architect Proposed Residential Development

To be built at **140 Ocean Street, Narrabeen NSW 2101**

Issue	File Ref	Description	Author	Date
A	19-0817	NatHERS and BASIX Assessment	FM	18/11/19

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



Sustainable Building Consultants

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License Holder: Tracey Cools
Accreditation Number: HERA10033

Prepared For:

John O'Brien Architect
John O'Brien
johnobrienarchitect@gmail.com

Specification

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.3 Thermal Comfort Simulation Software.

The following specification was used to achieve the thermal performance values. Modelling proxies are used at times and if the building element details vary the thermal performance specifications below shall take precedence.

If there is a change to this specification during design or construction, please contact Efficient Living for advice. If required, an updated Certificate will be issued.

BASIX Details

Dwelling One: House 1

Conditioned area:	157.3 m ²	Heating Load:	40.3 MJ/m ² /pa
Un-conditioned area:	6.5 m ²	Cooling Load:	23.8 MJ/m ² /pa

Dwelling Two: Apartment 01

Conditioned area:	80 m ²	Heating Load:	41.3 MJ/m ² /pa
Un-conditioned area:	3 m ²	Cooling Load:	9.2 MJ/m ² /pa

Dwelling Three: Apartment 02

Conditioned area:	89 m ²	Heating Load:	38.8 MJ/m ² /pa
Un-conditioned area:	0 m ²	Cooling Load:	15.7 MJ/m ² /pa

Glazing Doors/Windows

Aluminium framed glazing to the units **Apt 01 & Apt 02:**

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

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

Group B – sliding doors/windows + fixed glazing + louvered windows

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

Aluminium framed performance glazing to the single dwelling **H1:**

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

U-value: 4.30 (equal to or lower than) SHGC: 0.47 (±10%)

Group B – sliding doors/windows + fixed glazing + louvered windows

U-value: 4.30 (equal to or lower than) SHGC: 0.53 (±10%)

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



Roof

Concrete roof with water proofing membrane

External Colour

Medium ($0.475 < SA < 0.7$)

Ceiling

Plasterboard ceiling, R4.0 insulation (insulation only value) where roof above
Plasterboard ceiling, no insulation where neighbouring units are above

Ceiling Penetrations

Loss of ceiling insulation has been accounted for in accordance with BASIX Thermal Protocol 4.13.1 and NatHERS Technical Note 1.2

Assumed sealed LED downlights, one every 2.5m²

External Wall

150 mm Concrete wall with R2.5 insulation (insulation only value) to the single dwelling H1

150 mm Concrete wall with R2.0 insulation (insulation only value) to the units **Apt 01 & Apt 02**

External Colour: Medium ($0.475 < SA < 0.7$)

Inter-tenancy walls

150mm Concrete panel to walls adjacent to neighbours, no insulation required

Walls within dwellings

Plasterboard on studs - no insulation

Floors

Concrete slab on ground

Concrete between levels, no insulation required

Suspended concrete floor with R1.9 insulation

Floor coverings

Tiles throughout

External Shading

Shading as per stamped documentation

Ventilation

All external door have weather seals, all exhaust fans and chimneys have dampers, and down lights proposed will have capped fittings

Nationwide House Energy Rating Scheme* — Multiple-dwelling summary



Certificate number: **0004370940**

Certificate Date: **18 Nov 2019**

★ Average Star rating: **5.7**

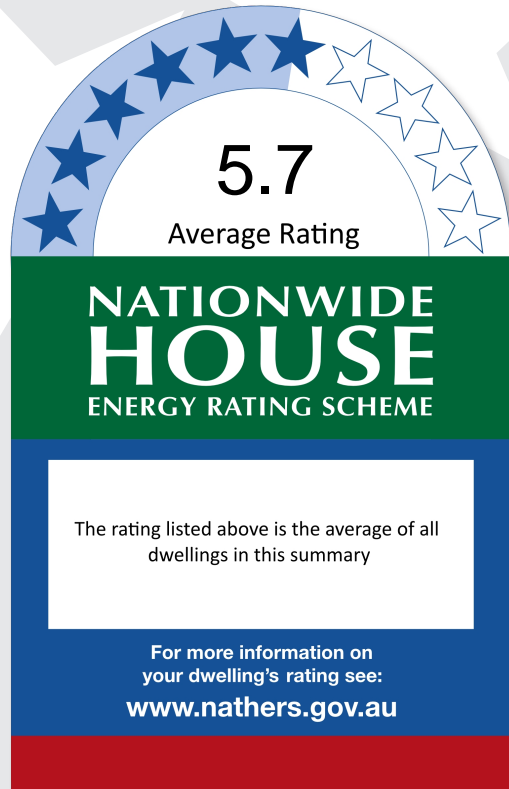
Assessor details

Accreditation number: **HERA10033**
Name: **Tracey Cools**
Organisation: **Efficient Living Pty Ltd**
Email: **admin@efficientliving.com.au**
Phone: **02 9970 6181**
Declaration of interest: **None**
Software: **BERS Pro v4.3.0.2f (3.13)**
AAO: **HERA**

Dwelling details

Street: **140 Ocean Street**
Suburb: **Narrabeen**
State: **NSW**
Postcode: **2101**

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



Summary of all dwellings

Certificate Details

Certificate number	Dwelling/Unit number	Heating load	Cooling load	Total load	Star Rating
0004370896	Apt 01	41.3	9.2	50.6	6.1
0004370920	Apt 02	38.8	15.7	54.5	5.8
0004370912	H1	40.3	23.8	64.1	5.2

Nationwide House Energy Rating Scheme* Certificate



Certificate number: **0004370912**

Certificate Date: **18 Nov 2019**

★ Star rating: **5.2**

BERS Pro v4.3.0.0 (3.13) cannot be used to model 'roof windows'. Roof windows are 'openable or fixed windows in a roof' and do not have a shaft, as distinct from skylights which incorporate a built-in shaft and are not ventilated. BERS Pro v4.3 can only model skylights. If a roof window is present on the floor plan then this certificate is not valid.

Assessor details

Accreditation number: **HERA10033**
Name: **Tracey Cools**
Organisation: **Efficient Living Pty Ltd**
Email: **admin@efficientliving.com.au**
Phone: **02 9970 6181**
Declaration of interest: **None**
Software: **BERS Pro v4.3.0.2f (3.13)**
AAO: **HERA**

Overview

Dwelling details

Street: **Unit H1, 140 Ocean Street**
Suburb: **Narrabeen**
State: **NSW** Postcode: **2101**
Type: **New Dwelling** NCC Class: **1A**
NatHERS climate zone: **56**
Lot/DP number: **13/606591** Exposure: **Open**

Key construction and insulation materials

(see following pages for details)

Construction: **Tilt up concrete, lined
Waterproofing Membrane
Suspended Concrete Slab**
Insulation: **R2.5 wall insulation
R4.0 ceiling insulation
R1.9 floor insulation**
Glazing: **ALM-004-03 A Aluminium B DG Air Fill
High Solar Gain low-E -Clear**

Net floor area (m²)

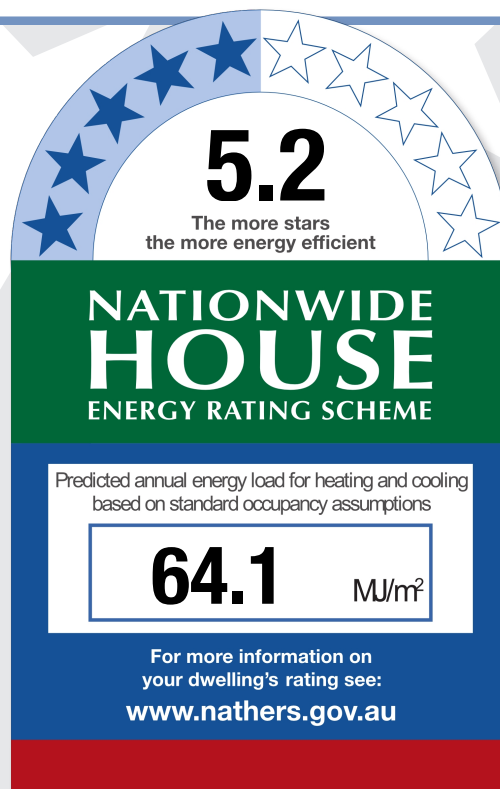
Conditioned: **157.0**
Unconditioned: **7.0**
Garage: **0.0**
TOTAL: **164.0**

Annual thermal performance loads (MJ/m²)

Heating: **40.3**
Cooling: **23.8**
TOTAL: **64.1**

Plan documents

Plan ref/date: **19-0817**
Prepared by: **John OBrien Architect**



Ceiling penetrations

(see following pages for details)

Sealed: **51**
Unsealed: **2**
TOTAL:** **53**

NOTE: This total is the maximum number of ceiling penetrations allowed to a ceiling (under a roof) for this certificate. **If this number is exceeded in construction then this certificate IS NOT VALID and a new certificate is required. Loss of ceiling insulation for the penetrations listed has been taken into account with the rating.

Principle downlight type: **LED**

Window selection - default windows only

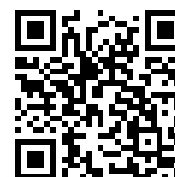
Note on allowable window values:
Only a 5% tolerance to the nominated SHGC window values shown on page 2 can be used with this rating.

Note: Only a +/- 5% SHGC tolerance is allowed with this rating.

NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated on page 2.

If any of windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be rerated to confirm compliance.

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



Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004370912**

Certificate Date:

18 Nov 2019

★ Star rating:

5.2



Building features

Window type and performance value

Window ID	Window type	U-value	SHGC
ALM-004-03 A	ALM-004-03 A Aluminium B DG Air Fill High Solar Gain low-E -Clear	4.3	0.53
ALM-003-03 A	ALM-003-03 A Aluminium A DG Air Fill High Solar Gain low-E -Clear	4.3	0.47

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Living	ALM-004-03 A	n/a	2700	700	W	No Shading
Living	ALM-004-03 A	n/a	2700	5000	W	No Shading
Bedroom 2	ALM-003-03 A	n/a	2700	950	S	Vertical Louvres, Vertical Blades
Bedroom 2	ALM-003-03 A	n/a	2700	950	S	Vertical Louvres, Vertical Blades
Bedroom 2	ALM-003-03 A	n/a	2700	950	S	Vertical Louvres, Vertical Blades
Living	ALM-004-03 A	n/a	2700	700	W	No Shading
Living	ALM-004-03 A	n/a	2700	700	E	No Shading
Living	ALM-003-03 A	n/a	2700	820	E	No Shading
Bedroom 3	ALM-003-03 A	n/a	2700	700	W	Vertical Louvres, Horizontal Blades
Bedroom 3	ALM-004-03 A	n/a	2700	1100	W	Vertical Louvres, Vertical Blades
Bedroom 4	ALM-003-03 A	n/a	2700	700	W	Vertical Louvres, Horizontal Blades
Bedroom 4	ALM-004-03 A	n/a	2700	1100	W	Vertical Louvres, Vertical Blades
Bath FF	ALM-003-03 A	n/a	600	950	S	No Shading
Kitchen/Living	ALM-004-03 A	n/a	2700	1300	E	No Shading
Kitchen/Living	ALM-003-03 A	n/a	2700	650	E	No Shading
Kitchen/Living	ALM-004-03 A	n/a	2700	1300	E	No Shading
Kitchen/Living	ALM-004-03 A	n/a	2700	950	S	Vertical Louvres, Vertical Blades
corridor	ALM-004-03 A	n/a	2700	1400	N	Vertical Louvres, Vertical Blades
Family room	ALM-004-03 A	n/a	300	4000	N	No Shading
Family room	ALM-004-03 A	n/a	2000	3700	E	No Shading
Family room	ALM-004-03 A	n/a	300	4000	S	No Shading
Family room	ALM-004-03 A	n/a	2540	250	W	No Shading
Family room	ALM-004-03 A	n/a	2540	250	W	No Shading
Family room	ALM-004-03 A	n/a	2540	250	W	No Shading

Roof window and skylight type and performance value

ID	Window type	U-value	SHGC
None Present			

Roof window and skylight schedule

Location	ID	Roof window/skylight no.	Area (m ²)	Orientation	Outdoor shade	Indoor shade/diffuser
None Present						

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004370912**

Certificate Date:

18 Nov 2019

★ Star rating:

5.2



Building features continued

External wall type

ID	Wall type	Insulation	Wall wrap or foil
EW-1	Tilt up concrete, lined	Bulk Insulation R2.5	No

External wall schedule

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Living	EW-1	2700	2700	N	No	200
Living	EW-1	900	2700	W	No	200
Living	EW-1	1576	2700	NE	No	180
Living	EW-1	3995	2700	S	No	100
Living	EW-1	6100	2700	W	No	4100
Bedroom 2	EW-1	2490	2700	S	No	100
Bedroom 2	EW-1	3090	2700	S	No	100
Bath	EW-1	700	2700	N	No	3500
Bath	EW-1	2800	2700	E	No	11800
Bath	EW-1	2400	2700	S	No	100
Living	EW-1	4495	2700	N	No	300
Living	EW-1	900	2700	W	No	200
Living	EW-1	1576	2700	NE	No	215
Living	EW-1	2190	2700	E	No	12500
Powder rm	EW-1	2195	2700	N	No	200
Powder rm	EW-1	1100	2700	E	No	11800
Powder rm	EW-1	700	2700	S	No	5100
Bedroom 3	EW-1	3795	2700	S	No	1100
Bedroom 3	EW-1	2995	2700	W	No	1000
Bedroom 4	EW-1	3095	2700	W	No	1000
Bedroom 4	EW-1	4095	2700	N	No	1200
Bath FF	EW-1	3590	2700	S	No	1100
Kitchen/Living	EW-1	8095	2700	N	No	1200
Kitchen/Living	EW-1	6100	2700	E	No	600
Kitchen/Living	EW-1	6395	2700	S	No	1100
corridor	EW-1	1590	2700	N	No	1200
Family room	EW-1	4000	3000	N	No	1000
Family room	EW-1	3700	3000	E	No	1100
Family room	EW-1	4000	3000	S	No	1000
Family room	EW-1	3700	3000	W	No	1000

Internal wall type

Wall type	Area (m ²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	108.0	No insulation	No
IW-2 - Cavity wall, direct fix plasterboard, single gap	20.0	Bulk Insulation, No Air Gap R2	No

Floors

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004370912**

Certificate Date:

18 Nov 2019

★ Star rating:

5.2



Building features continued

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Living	Concrete Slab on Ground 100mm	24.7	None	No Insulation	Ceramic Tiles 8mm
Bedroom 2	Concrete Slab on Ground 100mm	9.3	None	No Insulation	Ceramic Tiles 8mm
Bedroom 2	Concrete Slab on Ground 100mm	11.6	None	No Insulation	Ceramic Tiles 8mm
Bath	Concrete Slab on Ground 100mm	6.5	None	No Insulation	Ceramic Tiles 8mm
Living	Concrete Slab on Ground 100mm	16.3	None	No Insulation	Ceramic Tiles 8mm
Powder rm	Concrete Slab on Ground 100mm	2.3	None	No Insulation	Ceramic Tiles 8mm
Bedroom 3/Living	Concrete Above Plasterboard 150mm	7.0		No Insulation	Ceramic Tiles 8mm
Bedroom 3	Suspended Concrete Slab 150mm	4.4	Totally Open	Bulk Insulation in Contact with Floor R1.9	Ceramic Tiles 8mm
Bedroom 4/Living	Concrete Above Plasterboard 150mm	7.9		No Insulation	Ceramic Tiles 8mm
Bedroom 4	Suspended Concrete Slab 150mm	4.5	Totally Open	Bulk Insulation in Contact with Floor R1.9	Ceramic Tiles 8mm
Bath FF/Living	Concrete Above Plasterboard 150mm	3.1		No Insulation	Ceramic Tiles 8mm
Bath FF/Bedroom 2	Concrete Above Plasterboard 150mm	3.4		No Insulation	Ceramic Tiles 8mm
Ldry/Bedroom 2	Concrete Above Plasterboard 150mm	2.5		No Insulation	Ceramic Tiles 8mm
Kitchen/Living /Bedroom 2	Concrete Above Plasterboard 150mm	2.5		No Insulation	Ceramic Tiles 8mm
Kitchen/Living /Bedroom 2	Concrete Above Plasterboard 150mm	12.0		No Insulation	Ceramic Tiles 8mm
Kitchen/Living /Bath	Concrete Above Plasterboard 150mm	6.7		No Insulation	Ceramic Tiles 8mm
Kitchen/Living /Living	Concrete Above Plasterboard 150mm	15.7		No Insulation	Ceramic Tiles 8mm
Kitchen/Living /Powder rm	Concrete Above Plasterboard 150mm	2.4		No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Suspended Concrete Slab 150mm	3.3	Totally Open	Bulk Insulation in Contact with Floor R1.9	Ceramic Tiles 8mm
corridor/Living	Concrete Above Plasterboard 150mm	5.5		No Insulation	Ceramic Tiles 8mm
corridor/Bedroom 2	Concrete Above Plasterboard 150mm	0.7		No Insulation	Ceramic Tiles 8mm
Family room	Suspended Concrete Slab 150mm	14.8	Totally Open	Bulk Insulation in Contact with Floor R1.9	Ceramic Tiles 8mm

Ceiling type

Location	Construction	Added insulation	Roof space above
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Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004370912**

Certificate Date:

18 Nov 2019

★ Star rating:

5.2



Building features continued

Living	Concrete, Plasterboard	Bulk Insulation R4	Yes
Living	Concrete Above Plasterboard	No Insulation	No
Bedroom 2	Concrete Above Plasterboard	No Insulation	No
Bedroom 2	Concrete Above Plasterboard	No Insulation	No
Bath	Concrete Above Plasterboard	No Insulation	No
Living	Concrete, Plasterboard	Bulk Insulation R4	Yes
Living	Concrete Above Plasterboard	No Insulation	No
Powder rm	Concrete Above Plasterboard	No Insulation	No
Bedroom 3	Concrete, Plasterboard	Bulk Insulation R4	Yes
Bedroom 4	Concrete, Plasterboard	Bulk Insulation R4	Yes
Bath FF	Concrete, Plasterboard	Bulk Insulation R4	Yes
Ldry	Concrete, Plasterboard	Bulk Insulation R4	Yes
Kitchen/Living	Concrete, Plasterboard	Bulk Insulation R4	Yes
corridor	Concrete, Plasterboard	Bulk Insulation R4	Yes
Family room	Concrete, Plasterboard	Bulk Insulation R4	Yes

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Living	10	Downlights - LED	150	Sealed
Bedroom 2	3	Downlights - LED	150	Sealed
Bedroom 2	2	Downlights - Halogen	450	Unsealed
Bedroom 3	4	Downlights - LED	150	Sealed
Bedroom 4	5	Downlights - LED	150	Sealed
Bath FF	2	Downlights - LED	150	Sealed
Bath FF	1	Exhaust Fans	300	Sealed
Ldry	1	Downlights - LED	150	Sealed
Ldry	1	Exhaust Fans	300	Sealed
Kitchen/Living	21	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
corridor	2	Downlights - LED	150	Sealed

Ceiling fans

Location	Number	Diameter (mm)
None Present		

Roof type

Nationwide House Energy Rating Scheme* Certificate



Certificate number: **0004370912**

Certificate Date:

18 Nov 2019

★ Star rating:

5.2



Building features continued

Construction	Added insulation	Roof colour
Waterproofing Membrane	No Insulation, Only an Air Gap	Medium

Nationwide House Energy Rating Scheme* Certificate

Certificate number: 0004370912

Certificate Date: 18 Nov 2019

★ Star rating: 5.2



Additional information

Explanatory notes

About this report

Residential energy ratings address the quality of the building fabric i.e. walls, windows, floors and roof/ceilings. Ratings do not cover the energy or water efficiency of appliances including heating and cooling, hot water, dishwashers, ovens, fridges, TVs etc. or solar panel or water tank requirements. The efficiency or specification of these items is generally covered by other regulations, standards or guidelines.

General Information

A NatHERS House Energy Rating is a comprehensive, dynamic computer modelling evaluation of the floorplans, elevations and specifications to predict an energy load of a home. Not all of us use our homes in the same way, so ratings are generated using standard assumptions. This means homes can be compared across the country.

The actual energy consumption of your home may vary significantly from the predicted energy load figures in the report depending on issues such as the size of your household and your personal preferences, e.g. in terms of heating or cooling.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparative purposes between different house designs and for demonstrating that the design meets the required regulatory compliance.

Homes that are energy efficient use less energy, are warmer in winter, cooler in summer and cost less to run. The higher the star rating the more energy efficient.

This NatHERS House Energy Rating report was carefully prepared by your assessor on the basis of comprehensive modelling using standard procedures to rate your home using the underlying engine developed by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO).

All information relating to energy loads presented in this report is based on a range of standard assumptions in order to allow for comparisons with reports prepared for other homes and to demonstrate minimum regulatory compliance.

The standard assumptions include figures for occupancy, indoor air temperature and are based on a unique climate file for your region.

Accredited Assessors

To ensure you get a high-quality, professional NatHERS House Energy Rating report, you should always use an accredited assessor, accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

AAOs have specific quality assurance processes in place and continuing professional development requirements to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any on-going training requirements.

If you have any questions or concerns about this report, please direct them to your assessor in the first instance.

If your assessor is unable to address your questions or concerns, please contact their AAO listed under 'assessor details'. You can also find a range of information about accredited assessors on the AAO websites.

Disclaimer

The energy values quoted are for comparison purposes only; they are not a prediction of actual energy use. This rating only applies to the floor plan, construction details, orientation and climate as submitted and included in the attached drawing set that bears a stamp with the same number as this certificate. Changes to any of these details could affect the rating.

Contact

For more information on the Nationwide House Energy Rating Scheme (NatHERS), visit www.nathers.gov.au

For more information on energy efficient design and insulation visit www.yourhome.gov.au

Nationwide House Energy Rating Scheme* Certificate



Certificate number: **0004370896**

Certificate Date: **18 Nov 2019**

★ Star rating: **6.1**

BERS Pro v4.3.0.0 (3.13) cannot be used to model 'roof windows'. Roof windows are 'openable or fixed windows in a roof' and do not have a shaft, as distinct from skylights which incorporate a built-in shaft and are not ventilated. BERS Pro v4.3 can only model skylights. If a roof window is present on the floor plan then this certificate is not valid.

Assessor details

Accreditation number: **HERA10033**
Name: **Tracey Cools**
Organisation: **Efficient Living Pty Ltd**
Email: **admin@efficientliving.com.au**
Phone: **02 9970 6181**
Declaration of interest: **None**
Software: **BERS Pro v4.3.0.2f (3.13)**
AAO: **HERA**

Overview

Dwelling details

Street: **Unit Apt 01, 140 Ocean Street**
Suburb: **Narrabeen**
State: **NSW** Postcode: **2101**
Type: **New Dwelling** NCC Class: **2**
NatHERS climate zone: **56**
Lot/DP number: **13/606591** Exposure: **Open**

Key construction and insulation materials

(see following pages for details)

Construction: **Tilt up concrete, lined Concrete, Plasterboard Concrete Slab on Ground**
Insulation: **R2.0 wall insulation No ceiling insulation No floor insulation**
Glazing: **ALM-004-01 A Aluminium B DG Air Fill Clear-Clear**

Net floor area (m²)

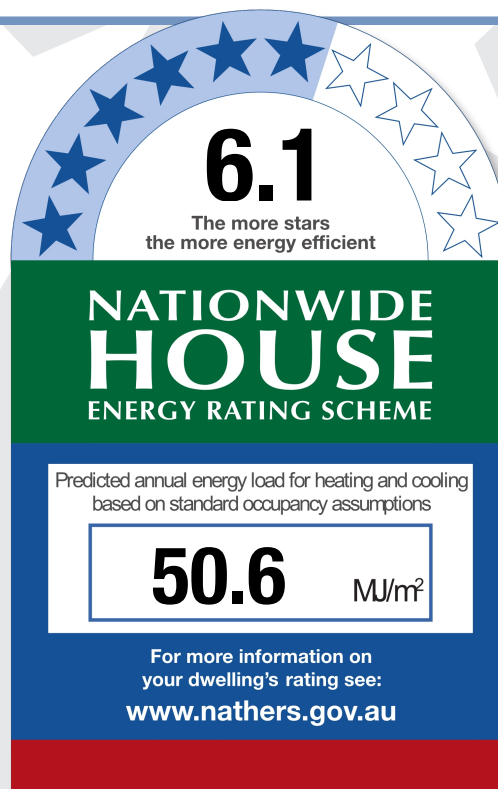
Conditioned: **80.0**
Unconditioned: **3.0**
Garage: **0.0**
TOTAL: **83.0**

Annual thermal performance loads (MJ/m²)

Heating: **41.3**
Cooling: **9.2**
TOTAL: **50.6**

Plan documents

Plan ref/date: **19-0817**
Prepared by: **John OBrien Architect**



Ceiling penetrations

(see following pages for details)

Sealed: **34**
Unsealed: **0**
TOTAL:** **34**

NOTE: This total is the maximum number of ceiling penetrations allowed to a ceiling (under a roof) for this certificate. **If this number is exceeded in construction then this certificate IS NOT VALID and a new certificate is required. Loss of ceiling insulation for the penetrations listed has been taken into account with the rating.

Principle downlight type: **LED**

Window selection - default windows only

Note on allowable window values: Only a 5% tolerance to the nominated SHGC window values shown on page 2 can be used with this rating.

Note: Only a +/- 5% SHGC tolerance is allowed with this rating.

NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated on page 2.

If any of windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be rerated to confirm compliance.

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



Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004370896**

Certificate Date:

18 Nov 2019

★ Star rating:

6.1



Building features

Window type and performance value

Window ID	Window type	U-value	SHGC
ALM-004-01 A	ALM-004-01 A Aluminium B DG Air Fill Clear-Clear	4.8	0.59
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Bedroom 1	ALM-004-01 A	n/a	2700	1800	N	Vertical Louvres, Horizontal Blades
Bedroom 2	ALM-004-01 A	n/a	2700	1800	N	Vertical Louvres, Horizontal Blades
Ldry	ALM-003-01 A	n/a	600	1500	S	No Shading
Kitchen/Living	ALM-004-01 A	n/a	2700	1000	N	Vertical Louvres, Vertical Blades
Kitchen/Living	ALM-004-01 A	n/a	2700	5500	E	No Shading
Kitchen/Living	ALM-003-01 A	n/a	600	1500	S	No Shading
Ens	ALM-003-01 A	n/a	600	750	N	No Shading

Roof window and skylight type and performance value

ID	Window type	U-value	SHGC
None Present			

Roof window and skylight schedule

Location	ID	Roof window/skylight no.	Area (m ²)	Orientation	Outdoor shade	Indoor shade/diffuser
None Present						

External wall type

ID	Wall type	Insulation	Wall wrap or foil
EW-1	Tilt up concrete, lined	Bulk Insulation R2	No

External wall schedule

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Bedroom 1	EW-1	2995	2700	N	No	200
Bedroom 1	EW-1	1400	2700	S	No	200
Bedroom 1	EW-1	3700	2700	W	No	300
Bedroom 2	EW-1	3090	2700	N	No	200
Ldry	EW-1	2390	2700	S	No	200
Kitchen/Living	EW-1	6495	2700	N	No	200
Kitchen/Living	EW-1	6200	2700	E	No	4200
Kitchen/Living	EW-1	6495	2700	S	No	200
Ens	EW-1	2590	2700	N	No	200
Entry	EW-1	895	2700	S	No	200
Entry	EW-1	1195	2700	W	No	100

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004370896**

Certificate Date:

18 Nov 2019

★ Star rating:

6.1



Building features continued

Internal wall type

Wall type	Area (m ²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	73.0	No insulation	No
IW-2 - Concrete Panel/Blocks filled, 14.0 plaster on studs		No Insulation	No

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Bedroom 1	Concrete Slab on Ground 100mm	10.9	None	No Insulation	Ceramic Tiles 8mm
Bedroom 2	Concrete Slab on Ground 100mm	11.0	None	No Insulation	Ceramic Tiles 8mm
Bath	Concrete Slab on Ground 100mm	4.3	None	No Insulation	Ceramic Tiles 8mm
Ldry	Concrete Slab on Ground 100mm	2.9	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab on Ground 100mm	40.0	None	No Insulation	Ceramic Tiles 8mm
Ens	Concrete Slab on Ground 100mm	4.7	None	No Insulation	Ceramic Tiles 8mm
Entry	Concrete Slab on Ground 100mm	9.4	None	No Insulation	Ceramic Tiles 8mm

Ceiling type

Location	Construction	Added insulation	Roof space above
Bedroom 1	Concrete, Plasterboard	No insulation	No
Bedroom 2	Concrete, Plasterboard	No insulation	No
Bath	Concrete, Plasterboard	No insulation	No
Ldry	Concrete, Plasterboard	No insulation	No
Kitchen/Living	Concrete, Plasterboard	No insulation	No
Ens	Concrete, Plasterboard	No insulation	No
Entry	Concrete, Plasterboard	No insulation	No

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Bedroom 1	4	Downlights - LED	150	Sealed
Bedroom 2	4	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Ldry	1	Downlights - LED	150	Sealed
Ldry	1	Exhaust Fans	300	Sealed
Kitchen/Living	16	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed

Nationwide House Energy Rating Scheme* Certificate



Certificate number: **0004370896**

Certificate Date:

18 Nov 2019

★ Star rating:

6.1



Building features continued

Ens	1	Downlights - LED	150	Sealed
Ens	1	Exhaust Fans	300	Sealed
Entry	3	Downlights - LED	150	Sealed

Ceiling fans

Location	Number	Diameter (mm)
None Present		

Roof type

Construction	Added insulation	Roof colour
None Present		

Nationwide House Energy Rating Scheme* Certificate

Certificate number: 0004370896

Certificate Date: 18 Nov 2019

★ Star rating: 6.1



Additional information

Explanatory notes

About this report

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General Information

A NatHERS House Energy Rating is a comprehensive, dynamic computer modelling evaluation of the floorplans, elevations and specifications to predict an energy load of a home. Not all of us use our homes in the same way, so ratings are generated using standard assumptions. This means homes can be compared across the country.

The actual energy consumption of your home may vary significantly from the predicted energy load figures in the report depending on issues such as the size of your household and your personal preferences, e.g. in terms of heating or cooling.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparative purposes between different house designs and for demonstrating that the design meets the required regulatory compliance.

Homes that are energy efficient use less energy, are warmer in winter, cooler in summer and cost less to run. The higher the star rating the more energy efficient.

This NatHERS House Energy Rating report was carefully prepared by your assessor on the basis of comprehensive modelling using standard procedures to rate your home using the underlying engine developed by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO).

All information relating to energy loads presented in this report is based on a range of standard assumptions in order to allow for comparisons with reports prepared for other homes and to demonstrate minimum regulatory compliance.

The standard assumptions include figures for occupancy, indoor air temperature and are based on a unique climate file for your region.

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Contact

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For more information on energy efficient design and insulation visit www.yourhome.gov.au

Nationwide House Energy Rating Scheme* Certificate



Certificate number: **0004370920**

Certificate Date: **18 Nov 2019**

★ Star rating: **5.8**

BERS Pro v4.3.0.0 (3.13) cannot be used to model 'roof windows'. Roof windows are 'openable or fixed windows in a roof' and do not have a shaft, as distinct from skylights which incorporate a built-in shaft and are not ventilated. BERS Pro v4.3 can only model skylights. If a roof window is present on the floor plan then this certificate is not valid.

Assessor details

Accreditation number: **HERA10033**
Name: **Tracey Cools**
Organisation: **Efficient Living Pty Ltd**
Email: **admin@efficientliving.com.au**
Phone: **02 9970 6181**
Declaration of interest: **None**
Software: **BERS Pro v4.3.0.2f (3.13)**
AAO: **HERA**

Overview

Dwelling details

Street: **Unit Apt 02, 140 Ocean Street**
Suburb: **Narrabeen**
State: **NSW** Postcode: **2101**
Type: **New Dwelling** NCC Class: **2**
NatHERS climate zone: **56**
Lot/DP number: **13/606591** Exposure: **Open**

Key construction and insulation materials

(see following pages for details)

Construction: **Tilt up concrete, lined Waterproofing Membrane Concrete Slab, Unit Below**
Insulation: **R2.0 wall insulation R4.0 ceiling insulation No floor insulation**
Glazing: **ALM-004-01 A Aluminium B DG Air Fill Clear-Clear**

Net floor area (m²)

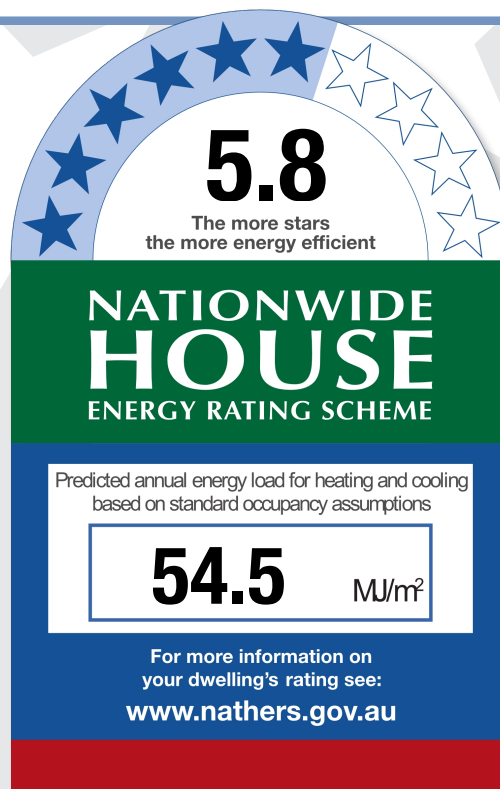
Conditioned: **89.0**
Unconditioned: **0.0**
Garage: **0.0**
TOTAL: **89.0**

Annual thermal performance loads (MJ/m²)

Heating: **38.8**
Cooling: **15.7**
TOTAL: **54.5**

Plan documents

Plan ref/date: **19-0817**
Prepared by: **John OBrien Architect**



Ceiling penetrations

(see following pages for details)

Sealed: **37**
Unsealed: **0**
TOTAL:** **37**

NOTE: This total is the maximum number of ceiling penetrations allowed to a ceiling (under a roof) for this certificate. **If this number is exceeded in construction then this certificate IS NOT VALID and a new certificate is required. Loss of ceiling insulation for the penetrations listed has been taken into account with the rating.

Principle downlight type: **LED**

Window selection - default windows only

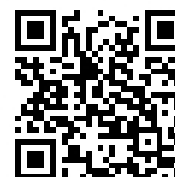
Note on allowable window values: Only a 5% tolerance to the nominated SHGC window values shown on page 2 can be used with this rating.

Note: Only a +/- 5% SHGC tolerance is allowed with this rating.

NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated on page 2.

If any of windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be rerated to confirm compliance.

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



Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004370920**

Certificate Date:

18 Nov 2019

★ Star rating:

5.8



Building features

Window type and performance value

Window ID	Window type	U-value	SHGC
ALM-003-01 A	ALM-003-01 A Aluminium A DG Air Fill Clear-Clear	4.8	0.51
ALM-004-01 A	ALM-004-01 A Aluminium B DG Air Fill Clear-Clear	4.8	0.59

Window schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Outdoor shade
Bedroom 1	ALM-003-01 A	n/a	2700	600	N	Vertical Louvres, Horizontal Blades
Bedroom 1	ALM-004-01 A	n/a	2700	750	N	Vertical Louvres, Vertical Blades
Bedroom 2	ALM-003-01 A	n/a	2700	600	N	Vertical Louvres, Horizontal Blades
Bedroom 2	ALM-004-01 A	n/a	2700	750	N	Vertical Louvres, Vertical Blades
Kitchen/Living	ALM-004-01 A	n/a	2700	1000	N	Vertical Louvres, Vertical Blades
Kitchen/Living	ALM-004-01 A	n/a	2700	5500	E	Horizontal Louvres, Horizontal Blades
Kitchen/Living	ALM-003-01 A	n/a	600	1500	S	No Shading
Ens	ALM-003-01 A	n/a	600	750	N	No Shading
Hallway/storage	ALM-004-01 A	n/a	2700	650	E	No Shading
Hallway/storage	ALM-004-01 A	n/a	2700	850	W	No Shading

Roof window and skylight type and performance value

ID	Window type	U-value	SHGC
None Present			

Roof window and skylight schedule

Location	ID	Roof window/skylight no.	Area (m ²)	Orientation	Outdoor shade	Indoor shade/diffuser
None Present						

External wall type

ID	Wall type	Insulation	Wall wrap or foil
EW-1	Tilt up concrete, lined	Bulk Insulation R2	No

External wall schedule

Location	ID	Width (mm)	Height (mm)	Orientation	Fixed Shade	Eaves (mm)
Bedroom 1	EW-1	2995	2700	N	No	1200
Bedroom 1	EW-1	3695	2700	W	No	1200
Bedroom 2	EW-1	3090	2700	N	No	1200
Ldry	EW-1	1300	2700	S	No	2300
Ldry	EW-1	1195	2700	W	No	1200
Kitchen/Living	EW-1	6495	2700	N	No	1200
Kitchen/Living	EW-1	6100	2700	E	No	200

Nationwide House Energy Rating Scheme* Certificate

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★ Star rating:

5.8



Building features continued

Kitchen/Living	EW-1	5695	2700	S	No	1100
Ens	EW-1	2590	2700	N	No	1200
Hallway/storage	EW-1	1695	2700	S	No	1100
Hallway/storage	EW-1	900	2700	E	No	7600
Hallway/storage	EW-1	1389	2700	SW	No	639
Hallway/storage	EW-1	200	2700	W	No	7800
Hallway/storage	EW-1	1195	2700	W	No	2500
Hallway/storage	EW-1	5295	2700	S	No	1100
Stairs GF	EW-1	3700	2700	S	No	0
Stairs GF	EW-1	1200	2700	W	No	0

Internal wall type

Wall type	Area (m ²)	Insulation	Wall wrap or foil
IW-1 - Cavity wall, direct fix plasterboard, single gap	90.0	No insulation	No
IW-2 - Concrete Panel/Blocks filled, 13.0 plaster on studs	13.0	No Insulation	No

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Bedroom 1	Concrete Slab, Unit Below 150mm	10.8	None	No Insulation	Ceramic Tiles 8mm
Bedroom 2	Concrete Slab, Unit Below 150mm	11.0	None	No Insulation	Ceramic Tiles 8mm
Bath	Concrete Slab, Unit Below 150mm	4.3	None	No Insulation	Ceramic Tiles 8mm
Ldry	Concrete Slab, Unit Below 150mm	2.1	None	No Insulation	Ceramic Tiles 8mm
Kitchen/Living	Concrete Slab, Unit Below 150mm	37.4	None	No Insulation	Ceramic Tiles 8mm
Ens	Concrete Slab, Unit Below 150mm	4.7	None	No Insulation	Ceramic Tiles 8mm
Hallway/storage	Concrete Slab, Unit Below 150mm	12.5	None	No Insulation	Ceramic Tiles 8mm
Hallway/storage/Stairs GF	Concrete Above Plasterboard 150mm	4.2		No Insulation	Ceramic Tiles 8mm
Hallway/storage	Concrete Slab, Unit Below 150mm	1.8	None	No Insulation	Ceramic Tiles 8mm
Stairs GF	Concrete Slab on Ground 100mm	4.4	None	No Insulation	Ceramic Tiles 8mm

Ceiling type

Location	Construction	Added insulation	Roof space above
Bedroom 1	Concrete, Plasterboard	Bulk Insulation R4	Yes

Nationwide House Energy Rating Scheme* Certificate

Certificate number: **0004370920**

Certificate Date:

18 Nov 2019

★ Star rating:

5.8



Building features continued

Bedroom 2	Concrete, Plasterboard	Bulk Insulation R4	Yes
Bath	Concrete, Plasterboard	Bulk Insulation R4	Yes
Ldry	Concrete, Plasterboard	Bulk Insulation R4	Yes
Kitchen/Living	Concrete, Plasterboard	Bulk Insulation R4	Yes
Ens	Concrete, Plasterboard	Bulk Insulation R4	Yes
Hallway/storage	Concrete, Plasterboard	Bulk Insulation R4	Yes
Hallway/storage	Concrete, Plasterboard	Bulk Insulation R4	Yes
Stairs GF	Concrete Above Plasterboard	No Insulation	No

Ceiling penetrations

Location	Number	Type	Diameter (mm)	Sealed/unsealed
Bedroom 1	4	Downlights - LED	150	Sealed
Bedroom 2	4	Downlights - LED	150	Sealed
Bath	1	Downlights - LED	150	Sealed
Bath	1	Exhaust Fans	300	Sealed
Ldry	1	Downlights - LED	150	Sealed
Ldry	1	Exhaust Fans	300	Sealed
Kitchen/Living	15	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Ens	1	Downlights - LED	150	Sealed
Ens	1	Exhaust Fans	300	Sealed
Hallway/storage	5	Downlights - LED	150	Sealed
Hallway/storage	2	Downlights - LED	150	Sealed

Ceiling fans

Location	Number	Diameter (mm)
None Present		

Roof type

Construction	Added insulation	Roof colour
Waterproofing Membrane	No Insulation, Only an Air Gap	Medium
Corrugated Iron	No Insulation, Only an Air Gap	Medium

Nationwide House Energy Rating Scheme* Certificate

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Additional information

Explanatory notes

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BASIX[®]Certificate

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

Multi Dwelling

Certificate number: 1057073M

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

Secretary

Date of issue: Monday, 18 November 2019

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



Project summary		
Project name	140 Ocean Street, Narrabeen	
Street address	140 Ocean Street Narrabeen 2101	
Local Government Area	Northern Beaches Council	
Plan type and plan number	deposited 606591	
Lot no.	13	
Section no.	-	
No. of residential flat buildings	1	
No. of units in residential flat buildings	2	
No. of multi-dwelling houses	0	
No. of single dwelling houses	1	
Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 51	Target 50




Certificate Prepared by

Name / Company Name: Efficient Living Pty Ltd

ABN (if applicable): 82116346082

Description of project

Project address	
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Street address	140 Ocean Street Narrabeen 2101
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 606591
Lot no.	13
Section no.	-
Project type	
No. of residential flat buildings	1
No. of units in residential flat buildings	2
No. of multi-dwelling houses	0
No. of single dwelling houses	1
Site details	
Site area (m ²)	957
Roof area (m ²)	314
Non-residential floor area (m ²)	0.0
Residential car spaces	5
Non-residential car spaces	0

Common area landscape		
Common area lawn (m ²)	170.0	
Common area garden (m ²)	198.0	
Area of indigenous or low water use species (m ²)	0.0	
Assessor details		
Assessor number	HERA10033	
Certificate number	0004370940	
Climate zone	56	
Project score		
Water	 40	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 51	Target 50

Description of project

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

Residential flat buildings - Multi Res, 2 dwellings, 2 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)
01	2	80.2	2.9	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)
02	2	88.8	0.0	0.0	0.0

Single dwelling houses

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)
1	1	157.3	6.5	0.0	0.0

No common areas specified.

Schedule of BASIX commitments

1. Commitments for Residential flat buildings - Multi Res

(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

(a) Dwellings

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

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 - Multi Res

(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: <ul style="list-style-type: none"> (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.	✓	✓	✓

Dwelling no.	Fixtures					Appliances		Individual pool				Individual spa		
	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 star	no	3 star	3 star	-	-	-	-	-	-	-

Dwelling no.	Alternative water source							
	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	electric heat pump - air sourced 26 to 30 STCs	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	interlocked to light

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
All dwellings	1-phase airconditioning 3 Star	-	1-phase airconditioning 3 Star	-	3 (dedicated)	2 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	yes

Dwelling no.	Individual pool		Individual spa		Appliances & other efficiency measures							
	Pool heating system	Timer	Spa heating system	Timer	Kitchen cooktop/oven	Refrigerator	Well ventilated fridge space	Dishwasher	Clothes washer	Clothes dryer	Indoor or sheltered clothes drying line	Private outdoor or unsheltered clothes drying line
All dwellings	-	-	-	-	gas cooktop & electric oven	-	yes	3 star	3 star	3 star	-	no

(iii) Thermal Comfort	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
(a) The applicant must attach the certificate referred to under "Assessor details" on the front page of this BASIX certificate (the "Assessor Certificate") to the development application and construction certificate application for the proposed development (or, if the applicant is applying for a complying development certificate for the proposed development, to that application). The applicant must also attach the Assessor Certificate to the application for a final occupation certificate for the proposed development.			
(b) The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
(c) The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX Certificate, including the details shown in the "Thermal Loads" table below.			
(d) The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Thermal Comfort Protocol requires to be shown on those plans. Those plans must bear a stamp of endorsement from the Accredited Assessor, to certify that this is the case.	✔		
(e) The applicant must show on the plans accompanying the application for a construction certificate (or complying development certificate, if applicable), all thermal performance specifications set out in the Assessor Certificate, and all aspects of the proposed development which were used to calculate those specifications.		✔	

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

Thermal loads		
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
01	41.3	9.2
All other dwellings	38.8	15.7

(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.	✓	✓	✓

3. Commitments for single dwelling houses

(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: <ul style="list-style-type: none"> <li data-bbox="219 708 1541 762">(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 <li data-bbox="219 778 1509 833">(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.	✓	✓	✓

Dwelling no.	Fixtures					Appliances		Individual pool				Individual spa		
	All shower-heads	All toilet flushing systems	All kitchen taps	All bathroom taps	HW recirculation or diversion	All clothes washers	All dish-washers	Volume (max volume)	Pool cover	Pool location	Pool shaded	Volume (max volume)	Spa cover	Spa shaded
All dwellings	4 star (> 6 but <= 7.5 L/min)	4 star	5 star	5 star	no	-	-	-	-	-	-	-	-	-

Dwelling no.	Alternative water source							
	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".		✔	
(j) The applicant must install the photovoltaic system specified for the dwelling under the "Photovoltaic system" heading of the "Alternative energy" column of the table below, and connect the system to that dwelling's electrical system.	✔	✔	✔

	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	electric heat pump - air sourced 26 to 30 STCs	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	interlocked to light

Dwelling no.	Cooling		Heating		Artificial lighting						Natural lighting	
	living areas	bedroom areas	living areas	bedroom areas	No. of bedrooms &/or study	No. of living &/or dining rooms	Each kitchen	All bathrooms/toilets	Each laundry	All hallways	No. of bathrooms &/or toilets	Main kitchen
All dwellings	1-phase airconditioning 3 Star	-	1-phase airconditioning 3 Star	-	4 (dedicated)	3 (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	yes (dedicated)	1	yes

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

Alternative energy	
Dwelling no.	Photovoltaic system (min rated electrical output in peak kW)
All dwellings	-

(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.			

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

Thermal loads		
Dwelling no.	Area adjusted heating load (in mJ/m²/yr)	Area adjusted cooling load (in mJ/m²/yr)
All dwellings	40.3	23.8

Construction of floors and walls					
Dwelling no.	Concrete slab on ground(m²)	Suspended floor with open subfloor (m²)	Suspended floor with enclosed subfloor (m²)	Suspended floor above garage (m²)	Primarily rammed earth or mudbrick walls
All dwellings	73	27	-	-	No

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...)
Central water tank - rainwater or stormwater (No. 1)	3000.0	To collect run-off from at least: - 100.0 square metres of roof area of buildings in the development - 0.0 square metres of impervious area in the development - 0.0 square metres of garden/lawn area in the development - 0.0 square metres of planter box area in the development (excluding, in each case, any area which drains to, or supplies, any other alternative water supply system).	- irrigation of 368.0 square metres of common landscaped area on the site - car washing in 0 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.	✔	✔	✔

Central energy systems	Type	Specification
Alternative energy supply	Photovoltaic system	Rated electrical output (min): 2.0 peak kW

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).