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NatHERS and BASIX Assessment

Annabelle Chapman Architect
Proposed Residential Development

To be built at **Granny Flat - 15 Hudson Parade, Avalon NSW 2107**

Issue	File Ref	Description	Author	Date
A	20-0763	NatHERS Thermal Comfort and BASIX Assessment	FM	25/08/2020

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

If there is a change to this specification during design or construction phases, please contact Efficient Living and quote the above file reference for advice, and to obtain an updated Certificate if required.

Sustainable Building Consultants
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25 August 2020

Annabelle Chapman Architect
Granny Flat - 15 Hudson Parade, Avalon

Assessor: Franklyn Muorah
Email: franklyn@efficientliving.com.au
License Holder: Tracey Cools
Accreditation Number: HERA10033

BASIX Details:

NatHERS Certificate Number: 0005105572-01
BASIX adjusted conditioned area: 52m^2
BASIX adjusted un-conditioned area: 7m^2
Area adjusted heating load: 42.8 MJ/ m^2/pa
Area adjusted cooling load: 22.3 MJ/ m^2/pa

Specification

Heating and cooling loads for the development have been determined using BERS Pro Plus 4.4 thermal comfort simulation software, and assessed under the thermal simulation method of the BASIX Protocol.

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

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

Floors

Concrete slab on ground, 150mm slab thickness

Suspended concrete slab, 150mm slab thickness with R2.0 insulation (insulation only value) to open subfloor and floor above storeroom & carport

External Walls

Lightweight wall with R2.0 insulation (insulation only value)

Concrete wall with R2.0 insulation (insulation only value) to the stairs in the carport

Note: No insulation is required to external Garage walls

External Colour: Light (SA < 0.475)

Walls within dwellings

Plasterboard on studs, no insulation required

Glazing Doors/Windows

Aluminium framed performance glazing system:

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

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

Roof and Ceilings

Metal roof with foil backed blanket (R_u1.3 and R_d1.3) (ie. Bradfords Anticon 60)

Plasterboard ceiling with R3.0 insulation (insulation only value) where roof above

External Colour

Light (SA < 0.475)

Ceiling Penetrations

Sealed LED downlights, one every 2.5m^2. Once lighting plan has been developed NatHERS certificate can be updated to improve specification.

Floor coverings

Tiles to bathrooms and timber elsewhere as per plans

External Shading

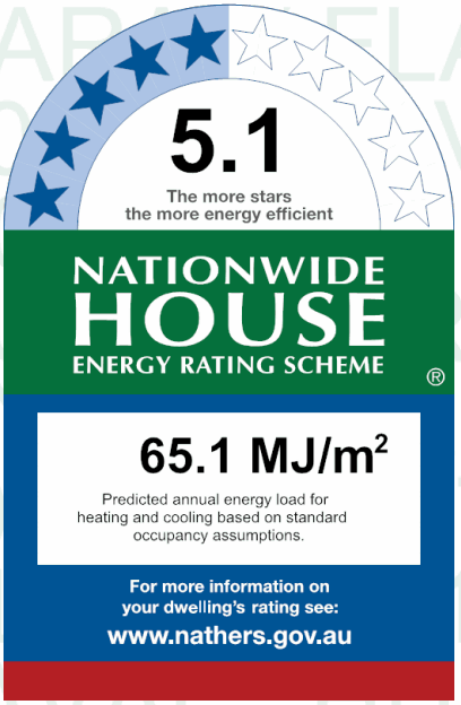
Shading as per stamped drawings

Ventilation

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

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005105572-01

Generated on 25 Aug 2020 using BERS Pro v4.4.0.1 (3.21)



Property

Address	Unit Granny Flat, 15 Hudson Parade , Avalon , NSW , 2107
Lot/DP	6/11376
NCC Class*	1A
Type	New Dwelling

Plans

Main Plan	20-0763
Prepared by	Annabelle Chapman Architect

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	52.0	Open
Unconditioned*	7.0	**NatHERS climate zone**
Total	60.0	56
Garage	0.0	

Thermal performance

Heating	**Cooling**
42.8 MJ/m^2	**22.3** MJ/m^2

Accredited assessor

Name	Tracey Cools
Business name	Efficient Living Pty Ltd
Email	admin@efficientliving.com.au
Phone	02 9970 6181
Accreditation No.	HERA10033
Assessor Accrediting Organisation	HERA
Declaration of interest	Declaration not completed

About the rating

NatHERS software models the expected thermal energy loads using information about the design and construction, climate and common patterns of household use. The software does not take into account appliances, apart from the airflow impacts from ceiling fans.

Verification

To verify this certificate, scan the QR code or visit hstar.com.au/QR/Generate?p=QxuKXpdiz.
When using either link, ensure you are visiting hstar.com.au

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated houses are detailed in 3.12.0(a)(i) and 3.12.5 of the NCC Volume Two. For apartments the requirements are detailed in J0.2 and J5 to J8 of the NCC Volume One.

In NCC 2019, these requirements include minimum star ratings and separate heating and cooling load limits that need to be met by buildings and apartments through the NatHERS assessment. Requirements additional to the NatHERS assessment that must also be satisfied include, but are not limited to: insulation installation methods, thermal breaks, building sealing, water heating and pumping, and artificial lighting requirements. The NCC and NatHERS Heating and Cooling Load Limits (Australian Building Codes Board Standard) are available at www.abcb.gov.au.

State and territory variations and additions to the NCC may also apply.

Certificate check

Ensure the dwelling is designed and then built as per the NatHERS Certificate. While you need to check the accuracy of the whole Certificate, the following spot check covers some important items impacting the dwelling's rating.

Genuine certificate

Does this Certificate match the one available at the web address or QR code in the verification box on the front page? Does the set of NatHERS-stamped plans for the dwelling have a Certificate number on the stamp that matches this Certificate?

Ceiling penetrations*

Does the 'number' and 'type' of ceiling penetrations (e.g. downlights, exhaust fans, etc) shown on the stamped plans or installed, match what is shown in this Certificate?

Windows

Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate?

Apartment entrance doors

Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure*

Has the appropriate exposure level (terrain) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected".

Provisional* values

Have provisional values been used in the assessment and, if so, noted in "additional notes" below?

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-004-01 A	ALM-004-01 A Aluminium B DG Air Fill Clear-Clear	4.8	0.59	0.56	0.62

Custom* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Stairs	ALM-004-01 A	n/a	1300	1000	n/a	90	E	No

* Refer to glossary.

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living	ALM-004-01 A	n/a	2100	1000	n/a	90	E	No
Kitchen/Living	ALM-004-01 A	n/a	2100	2000	n/a	90	E	No
Kitchen/Living	ALM-004-01 A	n/a	600	2500	n/a	00	W	No
Kitchen/Living	ALM-004-01 A	n/a	2600	4600	n/a	45	N	No
Kitchen/Living	ALM-004-01 A	n/a	2600	700	n/a	60	N	No
Kitchen/Living	ALM-004-01 A	n/a	2600	1600	n/a	45	N	No
Bedroom 1	ALM-004-01 A	n/a	600	2000	n/a	90	S	No
Bedroom 1	ALM-004-01 A	n/a	2600	3700	n/a	40	W	No
Bath	ALM-004-01 A	n/a	2600	700	n/a	90	E	No
Bath	ALM-004-01 A	n/a	600	2000	n/a	90	S	No

Roof window *type and performance*

Default* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
No Data Available					

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Height (mm)	Width (mm)	Orientation	Outdoor shade	Indoor shade
No Data Available								

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m^2)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Stairs	2040	820	90	W

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-1	Tilt up concrete, lined	0.30	Light	Bulk Insulation R2	No
EW-2	Tilt up concrete, lined	0.30	Light	Bulk Insulation R2	No
EW-3	Fibro Cavity Panel Direct Fix	0.30	Light	Bulk Insulation R2	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Stairs	EW-1	2600	1200	N	0	NO
Stairs	EW-1	2600	4100	E	0	NO
Stairs	EW-1	2600	1389	SW	0	NO
Stairs	EW-2	2600	3400	W	0	NO
Kitchen/Living	EW-3	2600	5895	E	0	NO
Kitchen/Living	EW-3	2600	4595	W	0	NO
Kitchen/Living	EW-3	2600	7200	N	1000	NO
Bedroom 1	EW-3	2600	3895	S	800	NO
Bedroom 1	EW-3	2600	3695	W	800	NO
Bath	EW-3	2600	2395	E	0	NO
Bath	EW-3	2600	3295	S	800	NO

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-1 - Cavity wall, direct fix plasterboard, single gap		29.00	No insulation

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
Stairs	Concrete Slab on Ground 150mm	4.50	None	No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living /Stairs	Concrete Above Plasterboard 150mm	4.30		No Insulation	Cork Tiles or Parquetry 8mm
Kitchen/Living	Suspended Concrete Slab 150mm	11.70	Enclosed	Bulk Insulation in Contact with Floor R2	Cork Tiles or Parquetry 8mm
Kitchen/Living	Suspended Concrete Slab 150mm	22.20	Totally Open	Bulk Insulation in Contact with Floor	Cork Tiles or Parquetry 8mm

* Refer to glossary.

Location	Construction	Area (m)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	Suspended Concrete Slab 150mm	13.20	Open	Bulk Insulation in Contact with Floor R2	Cork Tiles or Parquetry 8mm
Bath	Suspended Concrete Slab 150mm	7.30	Open	Bulk Insulation in Contact with Floor R2	Ceramic Tiles 8mm

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Stairs	Concrete Above Plasterboard	No Insulation	No
Kitchen/Living	Plasterboard	Bulk Insulation R3	No
Bedroom 1	Plasterboard	Bulk Insulation R3	No
Bath	Plasterboard	Bulk Insulation R3	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
Kitchen/Living	15	Downlights - LED	150	Sealed
Kitchen/Living	1	Exhaust Fans	300	Sealed
Bedroom 1	5	Downlights - LED	150	Sealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
Kitchen/Living	1	1200

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Corrugated Iron	Bulk, Reflective Side Down, No Air Gap Above R1.3	0.30	Light

* Refer to glossary.

Explanatory notes

About this report

A NatHERS rating is a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate an energy load. It addresses the building layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings), but does not cover the water or energy use of appliances or energy production of solar panels.

Ratings are based on a unique climate zone where the home is located and are generated using standard assumptions, including occupancy patterns and thermostat settings. The actual energy consumption of a home may vary significantly from the predicted energy load, as the assumptions used in the rating will not match actual usage patterns. For example, the number of occupants and personal heating or cooling preferences will vary.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparing different dwelling designs and to demonstrate that the design meets the energy efficiency requirements in the National Construction Code. Homes that are energy efficient use less energy, are warmer on cool days, cooler on hot days and cost less to run. The higher the star rating the more thermally efficient the dwelling is.

Accredited assessors

To ensure the NatHERS Certificate is of a high quality, always use an accredited or licenced assessor. NatHERS accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register

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 ongoing training requirements.

Any questions or concerns about this report should be directed to the assessor in the first instance. If the assessor is unable to address these questions or concerns, the AAO specified on the front of this certificate should be contacted.

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERS Administrator. However the content of each individual certificate is entered and created by the assessor to create a NatHERS Certificate. It is the responsibility of the assessor who prepared this certificate to use NatHERS accredited software correctly and follow the NatHERS Technical Notes to produce a NatHERS Certificate.

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way.

Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

Not all assumptions that may have been made by the assessor while using the NatHERS accredited software tool are presented in this report and further details or data files may be available from the assessor.

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

BASIX® Certificate

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

Single Dwelling

Certificate number: 1126781S_02

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: Tuesday, 25 August 2020
To be valid, this certificate must be lodged within 3 months of the date of issue.

NSW GOVERNMENT | Planning, Industry & Environment

Project summary	
Project name	Granny Flat - 15 Hudson Parade, Aval_02
Street address	15 Hudson Parade Avalon 2107
Local Government Area	Northern Beaches Council
Plan type and plan number	deposited 11376
Lot no.	6
Section no.	-
Project type	separate dwelling house
No. of bedrooms	1

Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 50	Target 50

Certificate Prepared by
Name / Company Name: Efficient Living Pty Ltd
ABN (if applicable): 82116346082

Description of project

Project address	
Project name	Granny Flat - 15 Hudson Parade, Aval_02
Street address	15 Hudson Parade Avalon 2107
Local Government Area	Northern Beaches Council
Plan type and plan number	Deposited Plan 11376
Lot no.	6
Section no.	-
Project type	
Project type	separate dwelling house
No. of bedrooms	1
Site details	
Site area (m²)	917
Roof area (m²)	66
Conditioned floor area (m2)	52.0
Unconditioned floor area (m2)	7.0
Total area of garden and lawn (m2)	516

Assessor details and thermal loads		
Assessor number	HERA10033	
Certificate number	0005105572-01	
Climate zone	56	
Area adjusted cooling load (MJ/m².year)	22	
Area adjusted heating load (MJ/m².year)	43	
Project score		
Water	✔ 40	Target 40
Thermal Comfort	✔ Pass	Target Pass
Energy	✔ 50	Target 50

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.

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Landscape			
The applicant must plant indigenous or low water use species of vegetation throughout 400 square metres of the site.	✔	✔	
Fixtures			
The applicant must install showerheads with a minimum rating of 4 star (> 4.5 but <= 6 L/min plus spray force and/or coverage tests) in all showers in the development.		✔	✔
The applicant must install a toilet flushing system with a minimum rating of 4 star in each toilet in the development.		✔	✔
The applicant must install taps with a minimum rating of 5 star in the kitchen in the development.		✔	
The applicant must install basin taps with a minimum rating of 5 star in each bathroom in the development.		✔	
Alternative water			
Stormwater tank			
The applicant must install a stormwater tank with a capacity of at least 4500 litres on the site. This stormwater tank must meet, and be installed in accordance with, the requirements of all applicable regulatory authorities.	✔	✔	✔
The applicant must configure the stormwater tank to collect runoff from: • at least 66 square metres of roof area of the development (excluding the area of the roof which drains to any rainwater tank or private dam) • at least 380 square metres of impervious areas • at least 516 square metres of garden and lawn		✔ ✔ ✔	✔ ✔ ✔
The applicant must connect the stormwater tank to:			

Water Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
• a sub-surface or non-aerosol irrigation system, or if the stormwater has been appropriately treated in accordance with applicable regulatory requirements, to at least one outdoor tap in the development (Note: NSWHealth does not recommend that stormwater be used to irrigate edible plants which are consumed raw.)		✔	✔

Thermal Comfort Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Simulation Method			
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 an occupation certificate for the proposed development.			
The Assessor Certificate must have been issued by an Accredited Assessor in accordance with the Thermal Comfort Protocol.			
The details of the proposed development on the Assessor Certificate must be consistent with the details shown in this BASIX certificate, including the Cooling and Heating loads shown on the front page of this certificate.			
The applicant must show on the plans accompanying the development application for the proposed development, all matters which the Assessor Certificate 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. 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.	✔	✔	✔
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.		✔	✔
The applicant must construct the floors and walls of the dwelling in accordance with the specifications listed in the table below.	✔	✔	✔

Floor and wall construction	Area
floor - concrete slab on ground	5.0 square metres
floor - suspended floor/open subfloor	43.0 square metres
floor - suspended floor/enclosed subfloor	12.0 square metres

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
Hot water			
The applicant must install the following hot water system in the development, or a system with a higher energy rating: gas instantaneous with a performance of 6 stars.	✔	✔	✔
Cooling system			
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 living area: ceiling fans; Energy rating: n/a		✔	✔
The applicant must install the following cooling system, or a system with a higher energy rating, in at least 1 bedroom: ceiling fans; Energy rating: n/a		✔	✔
Heating system			
The living areas must not incorporate any heating system, or any ducting which is designed to accommodate a heating system.		✔	✔
The bedrooms must not incorporate any heating system, or any ducting which is designed to accommodate a heating system.		✔	✔
Ventilation			
The applicant must install the following exhaust systems in the development:			
At least 1 Bathroom: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✔	✔
Kitchen: individual fan, ducted to façade or roof; Operation control: manual switch on/off		✔	✔
Laundry: natural ventilation only, or no laundry; Operation control: n/a		✔	✔
Artificial lighting			
The applicant must ensure that the "primary type of artificial lighting" is fluorescent or light emitting diode (LED) lighting in each of the following rooms, and where the word "dedicated" appears, the fittings for those lights must only be capable of accepting fluorescent or light emitting diode (LED) lamps:			
• at least 1 of the bedrooms / study; dedicated		✔	✔
• at least 2 of the living / dining rooms; dedicated		✔	✔
• the kitchen; dedicated		✔	✔

Energy Commitments	Show on DA plans	Show on CC/CDC plans & specs	Certifier check
• all bathrooms/toilets; dedicated		✔	✔
• the laundry; dedicated		✔	✔
• all hallways; dedicated		✔	✔
Natural lighting			
The applicant must install a window and/or skylight in the kitchen of the dwelling for natural lighting.	✔	✔	✔
The applicant must install a window and/or skylight in 1 bathroom(s)/toilet(s) in the development for natural lighting.	✔	✔	✔
Other			
The applicant must install a gas cooktop & gas oven in the kitchen of the dwelling.		✔	
The applicant must construct each refrigerator space in the development so that it is "well ventilated", as defined in the BASIX definitions.		✔	
The applicant must install a fixed outdoor clothes drying line as part of the development.		✔	

Legend
In these commitments, "applicant" means the person carrying out the development.
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).
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.
Commitments identified with a ✔ in the "Certifier check" column must be certified by a certifying authority as having been fulfilled, before a final occupation certificate(either interim or final) for the development may be issued.