

Nationwide House Energy Rating Scheme — Class 2 summary

Generated on 5 Feb 2021 using FirstRate5 v5.3.0a

Property

Address 2 Kulgun Court, OCEAN SHORES, NSW,
2483

Lot/DP

NatHERS climate zone

Accredited assessor



Duncan Hope

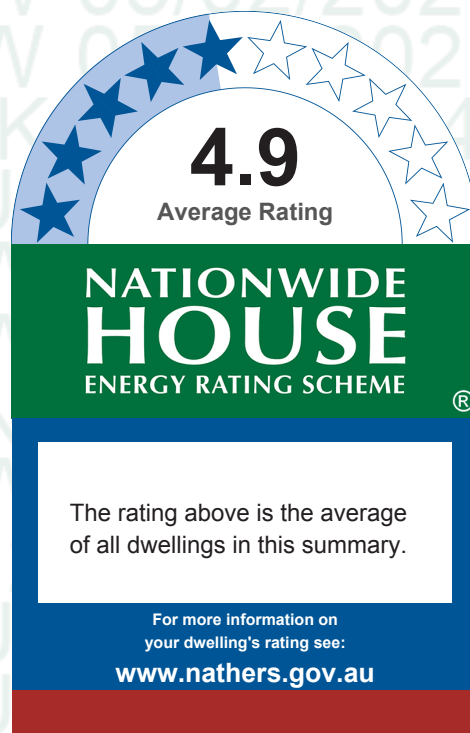
Senica Consultancy Group

duncan@senica.com.au

61280067784

Accreditation No. DMN/14/1658

Assessor Accrediting Organisation DMN



Verification

To verify this certificate, scan the QR code or visit

<https://www.fr5.com.au/QRCodeLanding?PublicId=ZSWKKA9QXM&GrpCert=1> When using either link, ensure you are visiting www.fr5.com.au.

Summary of all dwellings

Certificate number and link	Unit number	Heating load (MJ/m ² /p.a.)	Cooling load (MJ/m ² /p.a.)	Total load (MJ/m ² /p.a.)	Star rating
53SM20ARZM	09	18.2	39.2	57.4	4.8
EGWTZOXZD6	10	18.7	38.3	57	4.9
2EAALA21PS	11	18.5	38.4	56.9	4.9
8P00MUHFP0	12	18.7	38.3	57	4.9
INQLERRMGC	13	18.7	38.1	56.8	4.9
FM6AV12RA2	14	19	38	57	4.9
7JBHOYQ6HF	15	19	38	57	4.9

Continued over

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.

Summary of and links to all dwellings (continued)

Certificate number and link	Unit number	Heating load (MJ/m ² /p.a.)	Cooling load (MJ/m ² /p.a.)	Total load (MJ/m ² /p.a.)	Star rating
HRKMXOXZ54	16	19	38	57	4.9
Average		18.7	38.3	57	4.9

Explanatory notes

About this report

This summary rating is the average rating of all NCC Class 2 dwellings in a development. The individual dwellings' ratings are a comprehensive, dynamic computer modelling evaluation of a home, using the floorplans, elevations and specifications to estimate the 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. For more details about an individual dwelling's assessment, refer to the individual dwelling's NatHERS Certificate (accessible via link).

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). 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.

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, input and creation of the NatHERS Certificate is by the assessor. 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.

Nationwide House Energy Rating Scheme

NatHERS Certificate No. 2EAALA21PS

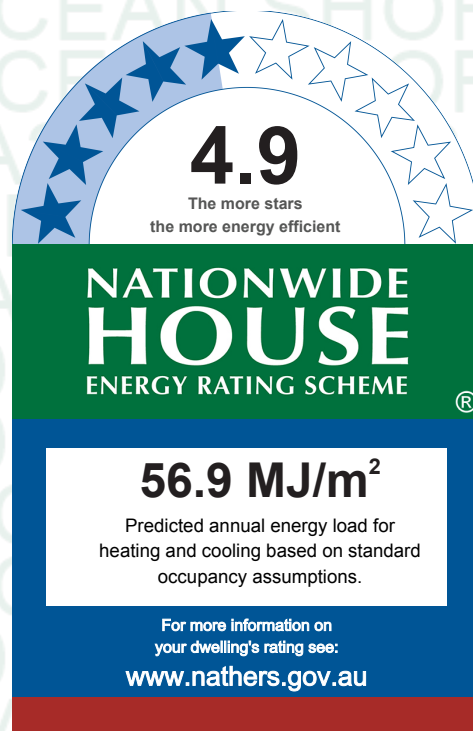
Generated on 5 Feb 2021 using FirstRate5: 5.3.0a (3.21)

Property

Address 11, 2 Kulgun Court, OCEAN SHORES, NSW, 2483
Lot/DP 9//SP102058
NCC Class* Class 1a
Type New Home

Plans

Main plan Project No. 20017
Prepared by Story Design Collective



Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	97.4	suburban
Unconditioned*	5.4	NatHERS climate zone
Total	102.8	10, OCEAN SHORES
Garage	-	

Thermal performance

Heating	Cooling
18.5	38.4
MJ/m²	MJ/m²

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

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Accredited assessor

Name	Duncan Hope
Business name	Senica Consultancy Group
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Phone	61280067784
Accreditation No.	DMN/14/1658
Assessor Accrediting Organisation	DMN
Declaration of interest	Declaration completed: no conflicts

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

* Refer to glossary.

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

Due to limitations with the window library, windows have been used in a generic manner. Please ignore the brand/make and refer to the U-Value and SHGC requirements.

If downlights are used in construction, they should be Insulation Continuous rated so that insulation may be laid over the downlights with no requirement for holes in the insulation.

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-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
Bedroom 1	ALM-002-01 A	1221s	1200	2100	sliding	45.0	ESE	No
Bedroom 1	ALM-002-01 A	2108dh	2100	800	double_hung	45.0	NNE	No

* Refer to glossary.

Bedroom 2	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bedroom 3	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bath	ALM-002-01 A	0615s	600	1500	sliding	45.0	SSW	No
Living	ALM-002-01 A	2424sd	2400	2400	sliding	45.0	WNW	No
Kitchen/Living	ALM-002-01 A	Opening 68	900	2400	sliding	45.0	NNE	No
Kitchen/Living	ALM-002-01 A	2434sd	2400	3400	sliding	66.0	ESE	No
Ensuite	ALM-002-01 A	1206s	1200	600	sliding	45.0	SSW	No

Roof window type and performance value

Default* roof windows

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

Custom* roof windows

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

Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m ²)	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
Living	2300	920	100.0	WNW

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	Weatherboard - 90mm Weatherboard with R2.0	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
2	Ret Walls - Conc. Block 190mm Retaining Walls w/ p'board	0.5	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2550	3775	ESE	0	No
Bedroom 1	1	2550	3594	NNE	4217	Yes
Bedroom 1	1	2550	3594	SSW	0	No
Bedroom 2	2	1450	3170	WNW	0	No
Bedroom 2	1	1100	3170	WNW	6072	Yes
Bedroom 2	1	2550	3498	SSW	0	No
Bedroom 3	1	2550	2988	SSW	0	No
Bath	1	2550	2739	SSW	0	No
Living	1	2700	105	NNE	0	Yes
Living	1	2700	780	ESE	0	Yes
Living	1	2700	3903	NNE	0	No
Living	1	2700	4743	WNW	1625	Yes
Kitchen/Living	1	2700	4490	NNE	0	No
Kitchen/Living	1	2700	780	WNW	0	No
Kitchen/Living	1	2700	3134	NNE	0	Yes
Kitchen/Living	1	2700	4163	ESE	3973	Yes
WIR	1	2550	320	NNE	0	Yes
Ensuite	1	2550	2494	SSW	0	No

Internal wall *type*

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	90.9	

Floor *type*

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	FR5 - Timber Lined	13.6	Open	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.4	Open	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.6	Open	R0.0	Carpet
Laundry Hallway	FR5 - Timber Lined	5	Open	R0.0	Timber
Bath	FR5 - Timber Lined	5.4	Open	R0.0	Tiles
Living	FR5 - Timber Lined	18.9	Open	R0.0	Timber
Kitchen/Living	FR5 - Timber Lined	29.9	Open	R0.0	Timber
WIR	FR5 - Timber Lined	3.9	Open	R0.0	Carpet
Ensuite	FR5 - Timber Lined	5.2	Open	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
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Bedroom 1	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 3	Plasterboard	R3.0	Yes
Laundry Hallway	Plasterboard	R3.0	Yes
Bath	Plasterboard	R3.0	Yes
Living	Plasterboard	R3.0	Yes
Kitchen/Living	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.5	Medium

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

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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).

Nationwide House Energy Rating Scheme

NatHERS Certificate No. 7JBHOYQ6HF

Generated on 5 Feb 2021 using FirstRate5: 5.3.0a (3.21)

Property

Address 15, 2 Kulgun Court, OCEAN SHORES, NSW, 2483
Lot/DP 9/SP102058
NCC Class* Class 1a
Type New Home

Plans

Main plan Project No. 20017
Prepared by Story Design Collective

Construction and environment

Assessed floor area (m²)*		Exposure type
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Garage	-	



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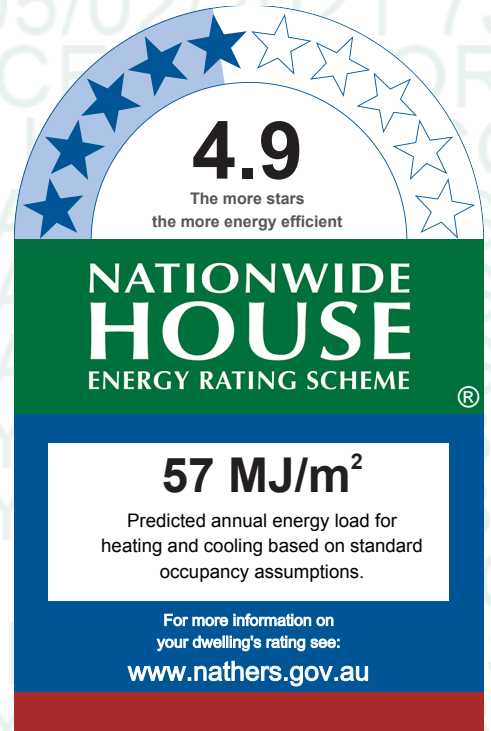
Name Duncan Hope
Business name Senica Consultancy Group
Email duncan@senica.com.au
Phone 61280067784
Accreditation No. DMN/14/1658
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Thermal performance

Heating	Cooling
19	38
MJ/m²	MJ/m²

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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?

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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.

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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".

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If downlights are used in construction, they should be Insulation Continuous rated so that insulation may be laid over the downlights with no requirement for holes in the insulation.

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-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
Bedroom 1	ALM-002-01 A	1221s	1200	2100	sliding	45.0	ESE	No
Bedroom 1	ALM-002-01 A	2108dh	2100	800	double_hung	45.0	NNE	No

* Refer to glossary.

Bedroom 2	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bedroom 3	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bath	ALM-002-01 A	0615s	600	1500	sliding	45.0	SSW	No
Living	ALM-002-01 A	2424sd	2400	2400	sliding	45.0	WNW	No
Kitchen/Living	ALM-002-01 A	Opening 68	900	2400	sliding	45.0	NNE	No
Kitchen/Living	ALM-002-01 A	2434sd	2400	3400	sliding	66.0	ESE	No
Ensuite	ALM-002-01 A	1206s	1200	600	sliding	45.0	SSW	No

Roof window *type and performance value*

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

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Area (m ²)	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)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Living	2300	920	100.0	WNW

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	Weatherboard - 90mm Weatherboard with R2.0	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2550	3775	ESE	0	No
Bedroom 1	1	2550	3594	NNE	4217	Yes
Bedroom 1	1	2550	3594	SSW	0	No
Bedroom 2	1	2550	3170	WNW	6072	Yes
Bedroom 2	1	2550	3498	SSW	0	No
Bedroom 3	1	2550	2988	SSW	0	No
Bath	1	2550	2739	SSW	0	No
Living	1	2700	105	NNE	0	Yes
Living	1	2700	780	ESE	0	Yes
Living	1	2700	3903	NNE	0	No
Living	1	2700	4743	WNW	1625	Yes
Kitchen/Living	1	2700	4490	NNE	0	No
Kitchen/Living	1	2700	780	WNW	0	No
Kitchen/Living	1	2700	3134	NNE	0	Yes
Kitchen/Living	1	2700	4163	ESE	3973	Yes
WIR	1	2550	320	NNE	0	Yes
Ensuite	1	2550	2494	SSW	0	No

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	90.9	

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	FR5 - Timber Lined	13.6	Open	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.4	Open	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.6	Open	R0.0	Carpet
Laundry Hallway	FR5 - Timber Lined	5	Open	R0.0	Timber
Bath	FR5 - Timber Lined	5.4	Open	R0.0	Tiles
Living	FR5 - Timber Lined	18.9	Open	R0.0	Timber
Kitchen/Living	FR5 - Timber Lined	29.9	Open	R0.0	Timber
WIR	FR5 - Timber Lined	3.9	Open	R0.0	Carpet
Ensuite	FR5 - Timber Lined	5.2	Open	R0.0	Tiles

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes

Bedroom 3	Plasterboard	R3.0	Yes
Laundry Hallway	Plasterboard	R3.0	Yes
Bath	Plasterboard	R3.0	Yes
Living	Plasterboard	R3.0	Yes
Kitchen/Living	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.5	Medium

Explanatory Notes

About this report

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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.

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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.

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Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
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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).

Nationwide House Energy Rating Scheme

NatHERS Certificate No. 8P00MUHFP0

Generated on 5 Feb 2021 using FirstRate5: 5.3.0a (3.21)

Property

Address 12, 2 Kulgun Court, OCEAN SHORES, NSW, 2483
Lot/DP 9//102058
NCC Class* Class 1a
Type New Home

Plans

Main plan Project No. 20017
Prepared by Story Design Collective

Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	97.4	suburban
Unconditioned*	5.4	NatHERS climate zone
Total	102.8	10, OCEAN SHORES
Garage	-	



Accredited assessor

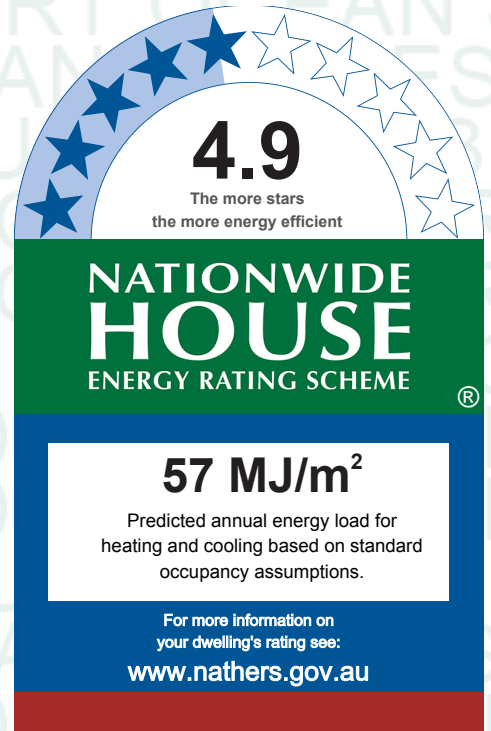
Name Duncan Hope
Business name Senica Consultancy Group
Email duncan@senica.com.au
Phone 61280067784
Accreditation No. DMN/14/1658
Assessor Accrediting Organisation DMN
Declaration of interest Declaration completed: no conflicts

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.



Thermal performance

Heating	Cooling
18.7	38.3
MJ/m²	MJ/m²

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 <https://www.fr5.com.au/QRCodeLanding?PublicId=8P00MUHFP0> When using either link, ensure you are visiting www.FR5.com.au.



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

Due to limitations with the window library, windows have been used in a generic manner. Please ignore the brand/make and refer to the U-Value and SHGC requirements.

If downlights are used in construction, they should be Insulation Continuous rated so that insulation may be laid over the downlights with no requirement for holes in the insulation.

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-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
Bedroom 1	ALM-002-01 A	1221s	1200	2100	sliding	45.0	ESE	No
Bedroom 1	ALM-002-01 A	2108dh	2100	800	double_hung	45.0	NNE	No

* Refer to glossary.

Bedroom 2	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bedroom 3	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bath	ALM-002-01 A	0615s	600	1500	sliding	45.0	SSW	No
Living	ALM-002-01 A	2424sd	2400	2400	sliding	45.0	WNW	No
Kitchen/Living	ALM-002-01 A	Opening 68	900	2400	sliding	45.0	NNE	No
Kitchen/Living	ALM-002-01 A	2434sd	2400	3400	sliding	66.0	ESE	No
Ensuite	ALM-002-01 A	1206s	1200	600	sliding	45.0	SSW	No

Roof window type and performance value

Default* roof windows

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

Custom* roof windows

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

Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m ²)	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
Living	2300	920	100.0	WNW

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	Weatherboard - 90mm Weatherboard with R2.0	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
2	Ret Walls - Conc. Block 190mm Retaining Walls w/ p'board	0.5	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2550	3775	ESE	0	No
Bedroom 1	1	2550	3594	NNE	4217	Yes
Bedroom 1	1	2550	3594	SSW	0	No
Bedroom 2	2	800	3170	WNW	0	No
Bedroom 2	1	1750	3170	WNW	6072	Yes
Bedroom 2	1	2550	3498	SSW	0	No
Bedroom 3	1	2550	2988	SSW	0	No
Bath	1	2550	2739	SSW	0	No
Living	1	2700	105	NNE	0	Yes
Living	1	2700	780	ESE	0	Yes
Living	1	2700	3903	NNE	0	No
Living	1	2700	4743	WNW	1625	Yes
Kitchen/Living	1	2700	4490	NNE	0	No
Kitchen/Living	1	2700	780	WNW	0	No
Kitchen/Living	1	2700	3134	NNE	0	Yes
Kitchen/Living	1	2700	4163	ESE	3973	Yes
WIR	1	2550	320	NNE	0	Yes
Ensuite	1	2550	2494	SSW	0	No

Internal wall *type*

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	90.9	

Floor *type*

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	FR5 - Timber Lined	13.6	Open	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.4	Open	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.6	Open	R0.0	Carpet
Laundry Hallway	FR5 - Timber Lined	5	Open	R0.0	Timber
Bath	FR5 - Timber Lined	5.4	Open	R0.0	Tiles
Living	FR5 - Timber Lined	18.9	Open	R0.0	Timber
Kitchen/Living	FR5 - Timber Lined	29.9	Open	R0.0	Timber
WIR	FR5 - Timber Lined	3.9	Open	R0.0	Carpet
Ensuite	FR5 - Timber Lined	5.2	Open	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
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Bedroom 1	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 3	Plasterboard	R3.0	Yes
Laundry Hallway	Plasterboard	R3.0	Yes
Bath	Plasterboard	R3.0	Yes
Living	Plasterboard	R3.0	Yes
Kitchen/Living	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.5	Medium

Explanatory Notes

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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).
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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.
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Nationwide House Energy Rating Scheme

NatHERS Certificate No. 53SM20ARZM

Generated on 5 Feb 2021 using FirstRate5: 5.3.0a (3.21)

Property

Address 09, 2 Kulgun Court, OCEAN SHORES, NSW, 2483
Lot/DP 9/SP102058
NCC Class* Class 1a
Type New Home

Plans

Main plan Project No. 20017
Prepared by Story Design Collective

Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	97.4	suburban
Unconditioned*	5.4	NatHERS climate zone
Total	102.8	10, OCEAN SHORES
Garage	-	



Accredited assessor

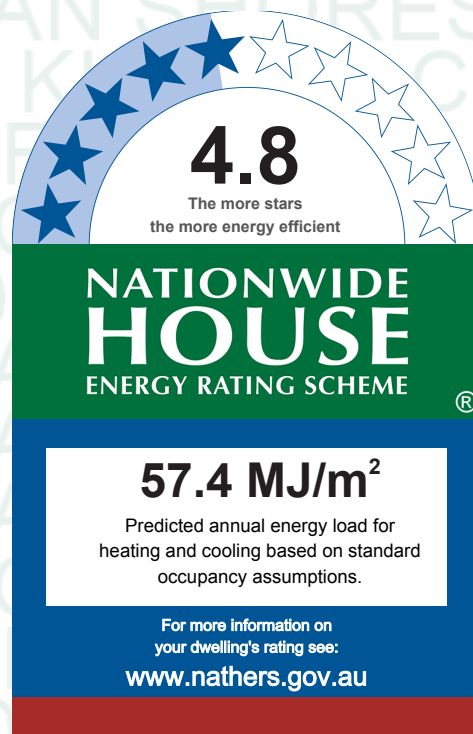
Name Duncan Hope
Business name Senica Consultancy Group
Email duncan@senica.com.au
Phone 61280067784
Accreditation No. DMN/14/1658
Assessor Accrediting Organisation DMN
Declaration of interest Declaration completed: no conflicts

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.

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



Thermal performance

Heating	Cooling
18.2	39.2
MJ/m²	MJ/m²

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 <https://www.fr5.com.au/QRCodeLanding?PublicId=53SM20ARZM> When using either link, ensure you are visiting www.FR5.com.au.



Certificate Check

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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?

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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

Due to limitations with the window library, windows have been used in a generic manner. Please ignore the brand/make and refer to the U-Value and SHGC requirements.

If downlights are used in construction, they should be Insulation Continuous rated so that insulation may be laid over the downlights with no requirement for holes in the insulation.

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-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
Bedroom 1	ALM-002-01 A	1221s	1200	2100	sliding	45.0	ESE	No
Bedroom 1	ALM-002-01 A	2108dh	2100	800	double_hung	45.0	NNE	No

* Refer to glossary.

Bedroom 2	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bedroom 3	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bath	ALM-002-01 A	0615s	600	1500	sliding	45.0	SSW	No
Living	ALM-002-01 A	2424sd	2400	2400	sliding	45.0	WNW	No
Kitchen/Living	ALM-002-01 A	Opening 68	900	2400	sliding	45.0	NNE	No
Kitchen/Living	ALM-002-01 A	2434sd	2400	3400	sliding	66.0	ESE	No
Ensuite	ALM-002-01 A	1206s	1200	600	sliding	45.0	SSW	No

Roof window type and performance value

Default* roof windows

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

Custom* roof windows

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

Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m ²)	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)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
Living	2300	920	100.0	WNW

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	Weatherboard - 90mm Weatherboard with R2.0	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
2	Ret Walls - Conc. Block 190mm Retaining Walls w/ p'board	0.5	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2550	3775	ESE	0	No
Bedroom 1	1	2550	3594	NNE	4217	Yes
Bedroom 1	1	2550	3594	SSW	0	No
Bedroom 2	2	800	3170	WNW	0	No
Bedroom 2	1	1750	3170	WNW	6072	Yes
Bedroom 2	1	2550	3498	SSW	0	No
Bedroom 3	1	2550	2988	SSW	0	No
Bath	1	2550	2739	SSW	0	No
Living	1	2700	105	NNE	0	Yes
Living	1	2700	780	ESE	0	Yes
Living	1	2700	3903	NNE	0	No
Living	1	2700	4743	WNW	1625	Yes
Kitchen/Living	1	2700	4490	NNE	0	No
Kitchen/Living	1	2700	780	WNW	0	No
Kitchen/Living	1	2700	3134	NNE	0	Yes
Kitchen/Living	1	2700	4163	ESE	3973	Yes
WIR	1	2550	320	NNE	0	Yes
Ensuite	1	2550	2494	SSW	0	No

Internal wall *type*

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	90.9	

Floor *type*

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	FR5 - Timber Lined	13.6	Open	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.4	Open	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.6	Open	R0.0	Carpet
Laundry Hallway	FR5 - Timber Lined	5	Open	R0.0	Timber
Bath	FR5 - Timber Lined	5.4	Open	R0.0	Tiles
Living	FR5 - Timber Lined	18.9	Open	R0.0	Timber
Kitchen/Living	FR5 - Timber Lined	29.9	Open	R0.0	Timber
WIR	FR5 - Timber Lined	3.9	Open	R0.0	Carpet
Ensuite	FR5 - Timber Lined	5.2	Open	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
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Bedroom 1	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 3	Plasterboard	R3.0	Yes
Laundry Hallway	Plasterboard	R3.0	Yes
Bath	Plasterboard	R3.0	Yes
Living	Plasterboard	R3.0	Yes
Kitchen/Living	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.5	Medium

Explanatory Notes

About this report

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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.

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Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
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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).

Nationwide House Energy Rating Scheme

NatHERS Certificate No. EGWTZOXZD6

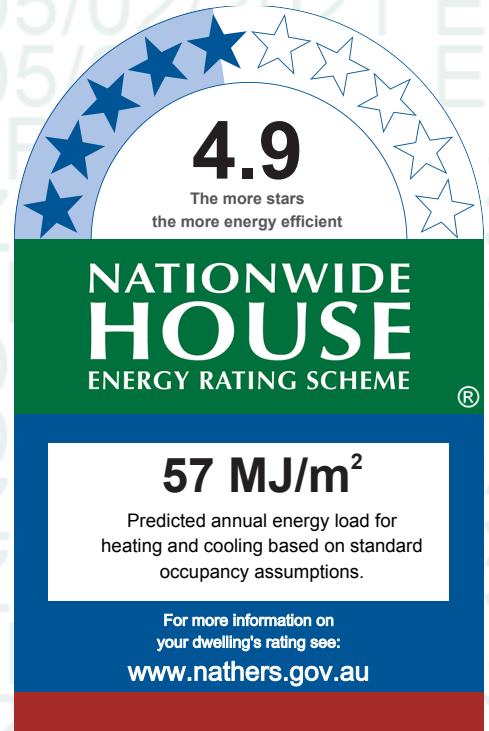
Generated on 5 Feb 2021 using FirstRate5: 5.3.0a (3.21)

Property

Address 10, 2 Kulgun Court, OCEAN SHORES, NSW, 2483
Lot/DP 9//SP102058
NCC Class* Class 1a
Type New Home

Plans

Main plan Project No. 20017
Prepared by Story Design Collective



Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	97.4	suburban
Unconditioned*	5.4	NatHERS climate zone
Total	102.8	10, OCEAN SHORES
Garage	-	

Thermal performance

Heating	Cooling
18.7	38.3
MJ/m²	MJ/m²

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 <https://www.fr5.com.au/QRCodeLanding?PublicId=EGWTZOXZD6> When using either link, ensure you are visiting www.FR5.com.au.



Accredited assessor

Name Duncan Hope
Business name Senica Consultancy Group
Email duncan@senica.com.au
Phone 61280067784
Accreditation No. DMN/14/1658
Assessor Accrediting Organisation DMN
Declaration of interest Declaration completed: no conflicts

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.

* Refer to glossary.

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

Due to limitations with the window library, windows have been used in a generic manner. Please ignore the brand/make and refer to the U-Value and SHGC requirements.

If downlights are used in construction, they should be Insulation Continuous rated so that insulation may be laid over the downlights with no requirement for holes in the insulation.

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-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
Bedroom 1	ALM-002-01 A	1221s	1200	2100	sliding	45.0	ESE	No
Bedroom 1	ALM-002-01 A	2108dh	2100	800	double_hung	45.0	NNE	No

* Refer to glossary.

Bedroom 2	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bedroom 3	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bath	ALM-002-01 A	0615s	600	1500	sliding	45.0	SSW	No
Living	ALM-002-01 A	2424sd	2400	2400	sliding	45.0	WNW	No
Kitchen/Living	ALM-002-01 A	Opening 68	900	2400	sliding	45.0	NNE	No
Kitchen/Living	ALM-002-01 A	2434sd	2400	3400	sliding	66.0	ESE	No
Ensuite	ALM-002-01 A	1206s	1200	600	sliding	45.0	SSW	No

Roof window *type and performance value*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Area (m ²)	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)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Living	2300	920	100.0	WNW

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	Weatherboard - 90mm Weatherboard with R2.0	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
2	Ret Walls - Conc. Block 190mm Retaining Walls w/ p'board	0.5	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2550	3775	ESE	0	No
Bedroom 1	1	2550	3594	NNE	4217	Yes
Bedroom 1	1	2550	3594	SSW	0	No
Bedroom 2	2	800	3170	WNW	0	No
Bedroom 2	1	1750	3170	WNW	6072	Yes
Bedroom 2	1	2550	3498	SSW	0	No
Bedroom 3	1	2550	2988	SSW	0	No
Bath	1	2550	2739	SSW	0	No
Living	1	2700	105	NNE	0	Yes
Living	1	2700	780	ESE	0	Yes
Living	1	2700	3903	NNE	0	No
Living	1	2700	4743	WNW	1625	Yes
Kitchen/Living	1	2700	4490	NNE	0	No
Kitchen/Living	1	2700	780	WNW	0	No
Kitchen/Living	1	2700	3134	NNE	0	Yes
Kitchen/Living	1	2700	4163	ESE	3973	Yes
WIR	1	2550	320	NNE	0	Yes
Ensuite	1	2550	2494	SSW	0	No

Internal wall *type*

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	90.9	

Floor *type*

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	FR5 - Timber Lined	13.6	Open	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.4	Open	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.6	Open	R0.0	Carpet
Laundry Hallway	FR5 - Timber Lined	5	Open	R0.0	Timber
Bath	FR5 - Timber Lined	5.4	Open	R0.0	Tiles
Living	FR5 - Timber Lined	18.9	Open	R0.0	Timber
Kitchen/Living	FR5 - Timber Lined	29.9	Open	R0.0	Timber
WIR	FR5 - Timber Lined	3.9	Open	R0.0	Carpet
Ensuite	FR5 - Timber Lined	5.2	Open	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
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Bedroom 1	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 3	Plasterboard	R3.0	Yes
Laundry Hallway	Plasterboard	R3.0	Yes
Bath	Plasterboard	R3.0	Yes
Living	Plasterboard	R3.0	Yes
Kitchen/Living	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.5	Medium

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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.
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Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
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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).

Nationwide House Energy Rating Scheme

NatHERS Certificate No. FM6AV12RA2

Generated on 5 Feb 2021 using FirstRate5: 5.3.0a (3.21)

Property

Address 14, 2 Kulgun Court, OCEAN SHORES, NSW, 2483
Lot/DP 9//SP102058
NCC Class* Class 1a
Type New Home

Plans

Main plan Project No. 20017
Prepared by Story Design Collective

Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	97.4	suburban
Unconditioned*	5.4	NatHERS climate zone
Total	102.8	10, OCEAN SHORES
Garage	-	



Accredited assessor

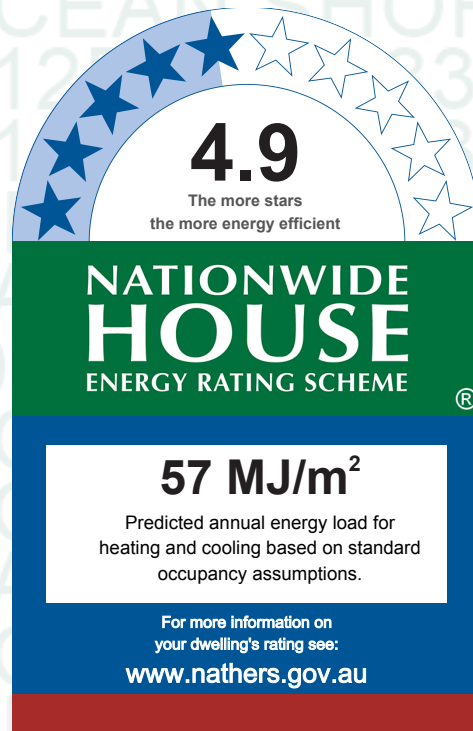
Name Duncan Hope
Business name Senica Consultancy Group
Email duncan@senica.com.au
Phone 61280067784
Accreditation No. DMN/14/1658
Assessor Accrediting Organisation DMN
Declaration of interest Declaration completed: no conflicts

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.



Thermal performance

Heating	Cooling
19	38
MJ/m²	MJ/m²

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 <https://www.fr5.com.au/QRCodeLanding?PublicId=FM6AV12RA2> When using either link, ensure you are visiting www.FR5.com.au.



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

Due to limitations with the window library, windows have been used in a generic manner. Please ignore the brand/make and refer to the U-Value and SHGC requirements.

If downlights are used in construction, they should be Insulation Continuous rated so that insulation may be laid over the downlights with no requirement for holes in the insulation.

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-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
Bedroom 1	ALM-002-01 A	1221s	1200	2100	sliding	45.0	ESE	No
Bedroom 1	ALM-002-01 A	2108dh	2100	800	double_hung	45.0	NNE	No

* Refer to glossary.

Bedroom 2	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bedroom 3	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bath	ALM-002-01 A	0615s	600	1500	sliding	45.0	SSW	No
Living	ALM-002-01 A	2424sd	2400	2400	sliding	45.0	WNW	No
Kitchen/Living	ALM-002-01 A	Opening 68	900	2400	sliding	45.0	NNE	No
Kitchen/Living	ALM-002-01 A	2434sd	2400	3400	sliding	66.0	ESE	No
Ensuite	ALM-002-01 A	1206s	1200	600	sliding	45.0	SSW	No

Roof window *type and performance value*

Default* roof windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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 %	Area (m²)	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 (m²)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Living	2300	920	100.0	WNW

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	Weatherboard - 90mm Weatherboard with R2.0	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2550	3775	ESE	0	No
Bedroom 1	1	2550	3594	NNE	4217	Yes
Bedroom 1	1	2550	3594	SSW	0	No
Bedroom 2	1	2550	3170	WNW	6072	Yes
Bedroom 2	1	2550	3498	SSW	0	No
Bedroom 3	1	2550	2988	SSW	0	No
Bath	1	2550	2739	SSW	0	No
Living	1	2700	105	NNE	0	Yes
Living	1	2700	780	ESE	0	Yes
Living	1	2700	3903	NNE	0	No
Living	1	2700	4743	WNW	1625	Yes
Kitchen/Living	1	2700	4490	NNE	0	No
Kitchen/Living	1	2700	780	WNW	0	No
Kitchen/Living	1	2700	3134	NNE	0	Yes
Kitchen/Living	1	2700	4163	ESE	3973	Yes
WIR	1	2550	320	NNE	0	Yes
Ensuite	1	2550	2494	SSW	0	No

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	90.9	

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	FR5 - Timber Lined	13.6	Open	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.4	Open	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.6	Open	R0.0	Carpet
Laundry Hallway	FR5 - Timber Lined	5	Open	R0.0	Timber
Bath	FR5 - Timber Lined	5.4	Open	R0.0	Tiles
Living	FR5 - Timber Lined	18.9	Open	R0.0	Timber
Kitchen/Living	FR5 - Timber Lined	29.9	Open	R0.0	Timber
WIR	FR5 - Timber Lined	3.9	Open	R0.0	Carpet
Ensuite	FR5 - Timber Lined	5.2	Open	R0.0	Tiles

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes

Bedroom 3	Plasterboard	R3.0	Yes
Laundry Hallway	Plasterboard	R3.0	Yes
Bath	Plasterboard	R3.0	Yes
Living	Plasterboard	R3.0	Yes
Kitchen/Living	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.5	Medium

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.

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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).

Nationwide House Energy Rating Scheme

NatHERS Certificate No. HRKMXOXZ54

Generated on 5 Feb 2021 using FirstRate5: 5.3.0a (3.21)

Property

Address 16, 2 Kulgun Court, OCEAN SHORES, NSW, 2483
Lot/DP 9//SP102058
NCC Class* Class 1a
Type New Home

Plans

Main plan Project No. 20017
Prepared by Story Design Collective

Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	97.4	suburban
Unconditioned*	5.4	NatHERS climate zone
Total	102.8	10, OCEAN SHORES
Garage	-	



Accredited assessor

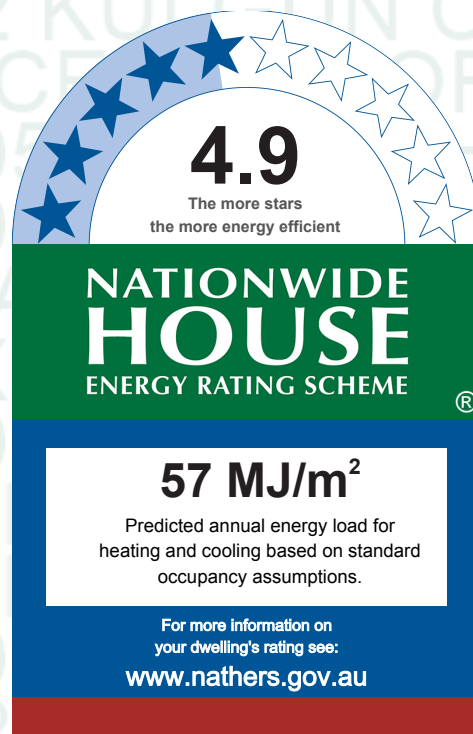
Name Duncan Hope
Business name Senica Consultancy Group
Email duncan@senica.com.au
Phone 61280067784
Accreditation No. DMN/14/1658
Assessor Accrediting Organisation DMN
Declaration of interest Declaration completed: no conflicts

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.



Thermal performance

Heating	Cooling
19	38
MJ/m²	MJ/m²

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 <https://www.fr5.com.au/QRCodeLanding?PublicId=HRKMXOXZ54> When using either link, ensure you are visiting www.FR5.com.au.



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

Due to limitations with the window library, windows have been used in a generic manner. Please ignore the brand/make and refer to the U-Value and SHGC requirements.

If downlights are used in construction, they should be Insulation Continuous rated so that insulation may be laid over the downlights with no requirement for holes in the insulation.

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-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
Bedroom 1	ALM-002-01 A	1221s	1200	2100	sliding	45.0	ESE	No
Bedroom 1	ALM-002-01 A	2108dh	2100	800	double_hung	45.0	NNE	No

* Refer to glossary.

Bedroom 2	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bedroom 3	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bath	ALM-002-01 A	0615s	600	1500	sliding	45.0	SSW	No
Living	ALM-002-01 A	2424sd	2400	2400	sliding	45.0	WNW	No
Kitchen/Living	ALM-002-01 A	Opening 68	900	2400	sliding	45.0	NNE	No
Kitchen/Living	ALM-002-01 A	2434sd	2400	3400	sliding	66.0	ESE	No
Ensuite	ALM-002-01 A	1206s	1200	600	sliding	45.0	SSW	No

Roof window *type and performance value*

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

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Area (m ²)	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)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Living	2300	920	100.0	WNW

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	Weatherboard - 90mm Weatherboard with R2.0	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2550	3775	ESE	0	No
Bedroom 1	1	2550	3594	NNE	4217	Yes
Bedroom 1	1	2550	3594	SSW	0	No
Bedroom 2	1	2550	3170	WNW	6072	Yes
Bedroom 2	1	2550	3498	SSW	0	No
Bedroom 3	1	2550	2988	SSW	0	No
Bath	1	2550	2739	SSW	0	No
Living	1	2700	105	NNE	0	Yes
Living	1	2700	780	ESE	0	Yes
Living	1	2700	3903	NNE	0	No
Living	1	2700	4743	WNW	1625	Yes
Kitchen/Living	1	2700	4490	NNE	0	No
Kitchen/Living	1	2700	780	WNW	0	No
Kitchen/Living	1	2700	3134	NNE	0	Yes
Kitchen/Living	1	2700	4163	ESE	3973	Yes
WIR	1	2550	320	NNE	0	Yes
Ensuite	1	2550	2494	SSW	0	No

Internal wall type

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	90.9	

Floor type

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	FR5 - Timber Lined	13.6	Open	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.4	Open	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.6	Open	R0.0	Carpet
Laundry Hallway	FR5 - Timber Lined	5	Open	R0.0	Timber
Bath	FR5 - Timber Lined	5.4	Open	R0.0	Tiles
Living	FR5 - Timber Lined	18.9	Open	R0.0	Timber
Kitchen/Living	FR5 - Timber Lined	29.9	Open	R0.0	Timber
WIR	FR5 - Timber Lined	3.9	Open	R0.0	Carpet
Ensuite	FR5 - Timber Lined	5.2	Open	R0.0	Tiles

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes

Bedroom 3	Plasterboard	R3.0	Yes
Laundry Hallway	Plasterboard	R3.0	Yes
Bath	Plasterboard	R3.0	Yes
Living	Plasterboard	R3.0	Yes
Kitchen/Living	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.5	Medium

Explanatory Notes

About this report

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Nationwide House Energy Rating Scheme

NatHERS Certificate No. INQLERRMGC

Generated on 5 Feb 2021 using FirstRate5: 5.3.0a (3.21)

Property

Address 13, 2 Kulgun Court, OCEAN SHORES, NSW, 2483
Lot/DP 9//SP102058
NCC Class* Class 1a
Type New Home

Plans

Main plan Project No. 20017
Prepared by Story Design Collective

Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	97.4	suburban
Unconditioned*	5.4	NatHERS climate zone
Total	102.8	10, OCEAN SHORES
Garage	-	



Accredited assessor

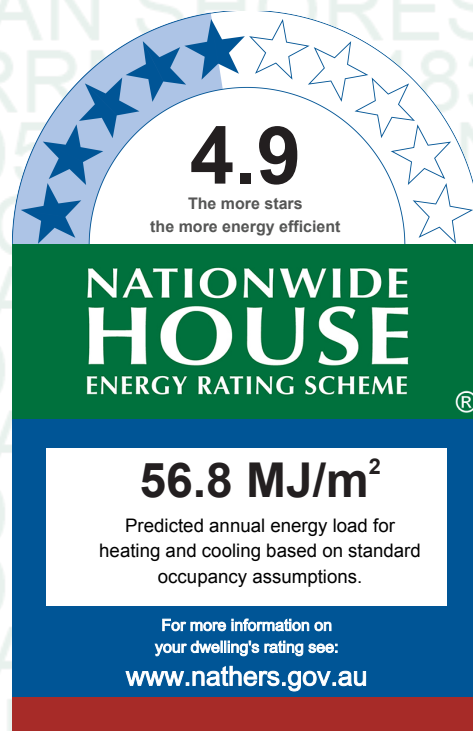
Name Duncan Hope
Business name Senica Consultancy Group
Email duncan@senica.com.au
Phone 61280067784
Accreditation No. DMN/14/1658
Assessor Accrediting Organisation DMN
Declaration of interest Declaration completed: no conflicts

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.



Thermal performance

Heating	Cooling
18.7	38.1
MJ/m²	MJ/m²

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 <https://www.fr5.com.au/QRCodeLanding?PublicId=INQLERRMGC> When using either link, ensure you are visiting www.FR5.com.au.



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

Due to limitations with the window library, windows have been used in a generic manner. Please ignore the brand/make and refer to the U-Value and SHGC requirements.

If downlights are used in construction, they should be Insulation Continuous rated so that insulation may be laid over the downlights with no requirement for holes in the insulation.

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-002-01 A	Aluminium B SG Clear	6.7	0.7	0.66	0.74

Custom* windows

				Substitution tolerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	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*
Bedroom 1	ALM-002-01 A	1221s	1200	2100	sliding	45.0	ESE	No
Bedroom 1	ALM-002-01 A	2108dh	2100	800	double_hung	45.0	NNE	No

* Refer to glossary.

Bedroom 2	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bedroom 3	ALM-002-01 A	1221s	1200	2100	sliding	45.0	SSW	No
Bath	ALM-002-01 A	0615s	600	1500	sliding	45.0	SSW	No
Living	ALM-002-01 A	2424sd	2400	2400	sliding	45.0	WNW	No
Kitchen/Living	ALM-002-01 A	Opening 68	900	2400	sliding	45.0	NNE	No
Kitchen/Living	ALM-002-01 A	2434sd	2400	3400	sliding	66.0	ESE	No
Ensuite	ALM-002-01 A	1206s	1200	600	sliding	45.0	SSW	No

Roof window *type and performance value*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

Location	Window ID	Window no.	Opening %	Area (m ²)	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)	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
Living	2300	920	100.0	WNW

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	Weatherboard - 90mm Weatherboard with R2.0	0.5	Medium	Glass fibre batt: R2.0 (R2.0)	No
2	Ret Walls - Conc. Block 190mm Retaining Walls w/ p'board	0.5	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2550	3775	ESE	0	No
Bedroom 1	1	2550	3594	NNE	4217	Yes
Bedroom 1	1	2550	3594	SSW	0	No
Bedroom 2	2	700	3170	WNW	0	No
Bedroom 2	1	1850	3170	WNW	6072	Yes
Bedroom 2	1	2550	3498	SSW	0	No
Bedroom 3	1	2550	2988	SSW	0	No
Bath	1	2550	2739	SSW	0	No
Living	1	2700	105	NNE	0	Yes
Living	1	2700	780	ESE	0	Yes
Living	1	2700	3903	NNE	0	No
Living	1	2700	4743	WNW	1625	Yes
Kitchen/Living	1	2700	4490	NNE	0	No
Kitchen/Living	1	2700	780	WNW	0	No
Kitchen/Living	1	2700	3134	NNE	0	Yes
Kitchen/Living	1	2700	4163	ESE	3973	Yes
WIR	1	2550	320	NNE	0	Yes
Ensuite	1	2550	2494	SSW	0	No

Internal wall *type*

Wall ID	Wall type	Area (m ²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	90.9	

Floor *type*

Location	Construction	Area (m ²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	FR5 - Timber Lined	13.6	Open	R0.0	Carpet
Bedroom 2	FR5 - Timber Lined	10.4	Open	R0.0	Carpet
Bedroom 3	FR5 - Timber Lined	10.6	Open	R0.0	Carpet
Laundry Hallway	FR5 - Timber Lined	5	Open	R0.0	Timber
Bath	FR5 - Timber Lined	5.4	Open	R0.0	Tiles
Living	FR5 - Timber Lined	18.9	Open	R0.0	Timber
Kitchen/Living	FR5 - Timber Lined	29.9	Open	R0.0	Timber
WIR	FR5 - Timber Lined	3.9	Open	R0.0	Carpet
Ensuite	FR5 - Timber Lined	5.2	Open	R0.0	Tiles

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
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Bedroom 1	Plasterboard	R3.0	Yes
Bedroom 2	Plasterboard	R3.0	Yes
Bedroom 3	Plasterboard	R3.0	Yes
Laundry Hallway	Plasterboard	R3.0	Yes
Bath	Plasterboard	R3.0	Yes
Living	Plasterboard	R3.0	Yes
Kitchen/Living	Plasterboard	R3.0	Yes
WIR	Plasterboard	R3.0	Yes
Ensuite	Plasterboard	R3.0	Yes

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
No Data Available				

Ceiling *fans*

Location	Quantity	Diameter (mm)
No Data Available		

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Cont:Attic-Continuous	1.3	0.5	Medium

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.

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