Nationwide House Energy Rating Scheme — Class 2 summary
NatHERS Certificate No. 0005484000

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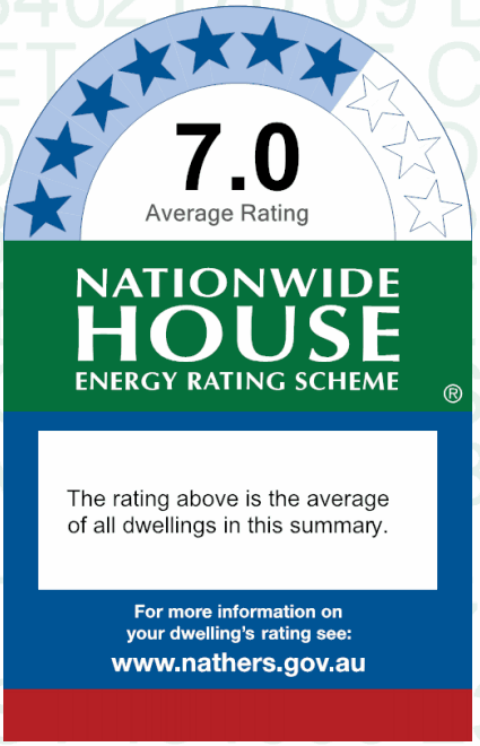

Property

Address 23-25 Charles Street , Liverpool , NSW , 2170

Lot/DP Lot 1 & 2 DP 500066

NatHERS climate zone 28

Accredited assessor

Raymond Sleiman

Taylor Smith Consulting

rsleiman@taylorsmith.com.au

02 9890 8002

Accreditation No. DMN/12/1472

Assessor Accrediting Organisation Design Matters National

Verification

To verify this certificate, scan the QR code or visit www.hstar.com.au/QR/Generate?p=QKjMsBwQS . When using either link, ensure you are visiting www.hstar.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
0005483607	1	61.35	35.75	97.10	5.6
0005483623	2	62.33	16.42	78.75	6.4
0005483672	3	42.71	16.73	59.44	7.3
0005483664	4	36.72	28.06	64.77	7.1
0005483680	5	50.43	37.23	87.66	5.9

Continued Over

National Construction Code (NCC) requirements

The NCC's requirements for NatHERS-rated buildings 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 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
0005483730	6	53.37	21.54	74.91	6.6
0005483706	7	28.97	17.45	46.42	7.9
0005483714	8	27.24	28.07	55.31	7.4
0005483698	9	58.72	33.87	92.59	5.8
0005483722	10	59.50	24.06	83.57	6.2
0005483755	11	45.22	18.62	63.85	7.1
0005483789	12	30.14	25.01	55.15	7.4
0005483763	13	34.02	20.97	54.99	7.5
0005483771	14	22.54	26.97	49.50	7.7
0005483748	15	22.00	38.95	60.95	7.2
0005483797	16	31.52	21.58	53.10	7.6
0005483821	17	21.49	27.90	49.39	7.8
0005483862	18	22.21	39.09	61.29	7.2
0005483839	19	30.44	21.72	52.15	7.6
0005483854	20	20.67	28.64	49.31	7.8
0005483847	21	23.32	39.03	62.36	7.2
0005483888	22	61.86	26.98	88.84	5.9
0005483995	23	37.26	34.57	71.84	6.7
Average		38.44	27.36	65.79	7.00

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

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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483607

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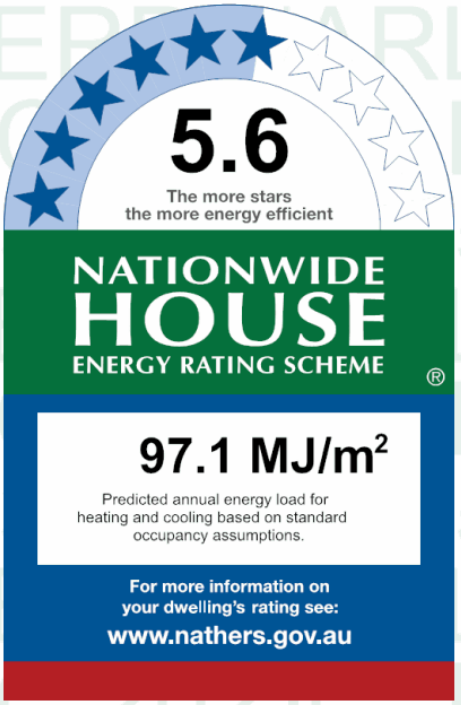

Property

Address	Unit 1, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	69.2	Suburban
Unconditioned*	0.0	**NatHERS climate zone**
Total	69.2	28
Garage		

Thermal performance

Heating	Cooling
61.4 MJ/m^2	35.8 MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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.

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Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	W	None
LIVING/KITCHEN	ALM-002-03 A	W10	600	1500	Other	00	S	None
LIVING/KITCHEN	ALM-002-03 A	W10	600	1500	Other	00	S	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None
BED 1	ALM-002-03 A	W10	600	1500	Other	00	S	None
BED 2	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 2	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

* Refer to glossary.

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY	2400	1000	100	N
BASEMENT	2400	5500	100	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-005	Plasterboard/Brick wall	50	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	4500	W		Yes
LIVING/KITCHEN	EW-002	2700	5100	S		No
BED 1	EW-002	2700	3370	E		No
BED 1	EW-002	2700	4660	S		No
ENTRY	EW-003	2700	2050	N		No
BATH	EW-002	2700	2000	W		Yes
BED 2	EW-002	2700	3000	E		No
BASEMENT	EW-005	2700	28500	W		No
BASEMENT	EW-005	2700	12700	N		No
BASEMENT	EW-005	2700	28500	E		No
BASEMENT	EW-005	2700	12700	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	53.65	
IW-002	Plasterboard/Concrete block	14.85	
IW-003	Plasterboard/Brick wall	17.55	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	21.40		R3.0	Ceramic tile
BED 1/BASEMENT	Concrete Slab 200 mm: carpet/bare R3.0 + Acryllic Render	15.70		R3.0	Carpet 10 + felt underlay 10

* Refer to glossary.

Location	Construction	Area (m)	Sub-floor ventilation	Added insulation (R-value)	Covering
ENTRY/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	16.00		R3.0	Ceramic tile
BATH/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	6.00		R3.0	Ceramic tile
BED 2/BASEMENT	Concrete Slab 200 mm: carpet/bare R3.0 + Acryllic Render	10.10		R3.0	Carpet 10 + felt underlay 10
BASEMENT/Ground	Concrete Slab 200 mm: bare/bare	352.10			

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 2	Concrete Slab 200 mm: carpet/plasterboard		No
BED 1/BASEMENT	Concrete Slab 200 mm: carpet/bare R3.0 + Acryllic Render	R3.0	No
LIVING/KITCHEN/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	R3.0	No
ENTRY/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	R3.0	No
BATH/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	R3.0	No
BED 2/BASEMENT	Concrete Slab 200 mm: carpet/bare R3.0 + Acryllic Render	R3.0	No
Neighbour/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	R3.0	No
Neighbour/BASEMENT	Concrete Slab 200 mm: carpet/bare R3.0 + Acryllic Render	R3.0	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY	1	Ceiling exhaust fan	160	Unsealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

* Refer to glossary.

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
C/P_ROOF-B012.rof #1003 © Concrete slab 200mm - Tile walking surface - no insulation - No ceiling under		50	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. 0005483623

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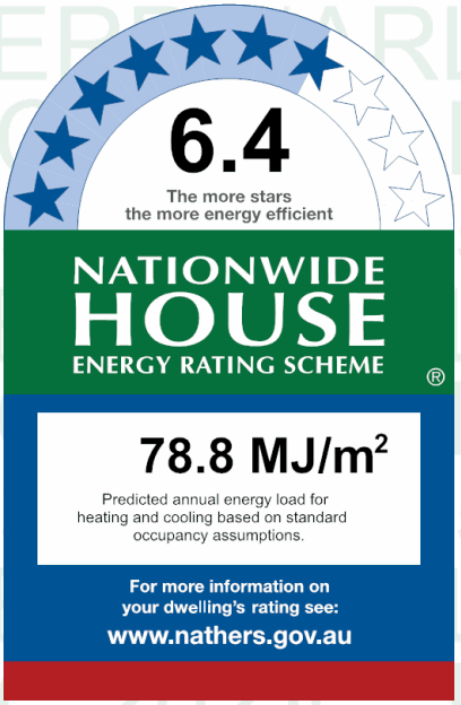

Property

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Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

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Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	48.7	Suburban
Unconditioned*	0.0	**NatHERS climate zone**
Total	48.7	28
Garage		

Thermal performance

Heating	**Cooling**
62.3 MJ/m^2	**16.4** MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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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

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
ATB-003-03 B	Al Thermally Broken A DG Air Fill High Solar Gain low-E -Clear	3.1	0.39	0.37	0.41
ATB-004-03 B	Al Thermally Broken B DG Air Fill High Solar Gain low-E -Clear	3.1	0.49	0.47	0.51

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ATB-004-03 B	D04	2700	1800	Sliding	45	S	None
LIVING/KITCHEN	ATB-003-03 B	W02	2700	900	Awning	10	W	None
LIVING/KITCHEN	ATB-003-03 B	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ATB-003-03 B	W02	2700	900	Awning	10	W	None
BED 1	ATB-004-03 B	D04	2700	1800	Sliding	45	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY	2400	1000	100	E
BASEMENT	2400	5500	100	E

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-005	Plasterboard/Brick wall	50	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	1950	S		Yes
LIVING/KITCHEN	EW-002	2700	4480	W		No
LIVING/KITCHEN	EW-002	2700	320	W		Yes
BED 1	EW-002	2700	3030	W		Yes
BED 1	EW-003	2700	100	E		No
ENTRY	EW-003	2700	2000	E		No
BATH	EW-003	2700	3000	E		No
BASEMENT	EW-005	2700	28500	W		No
BASEMENT	EW-005	2700	12700	N		No
BASEMENT	EW-005	2700	28500	E		No
BASEMENT	EW-005	2700	12700	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	34.56	
IW-003	Plasterboard/Brick wall	40.58	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	21.40		R3.0	Ceramic tile
BED 1/BASEMENT	Concrete Slab 200 mm: carpet/bare R3.0 + Acryllic Render	14.90		R3.0	Carpet 10 + felt underlay 10
ENTRY/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	6.40		R3.0	Ceramic tile
BATH/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	6.00		R3.0	Ceramic tile
BASEMENT/Ground	Concrete Slab 200 mm: bare/bare	352.10			

* Refer to glossary.

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
BED 1/BASEMENT	Concrete Slab 200 mm: carpet/bare R3.0 + Acryllic Render	R3.0	No
LIVING/KITCHEN/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	R3.0	No
ENTRY/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	R3.0	No
BATH/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	R3.0	No
Neighbour/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R3.0 + Acryllic Render	R3.0	No
Neighbour/BASEMENT	Concrete Slab 200 mm: carpet/bare R3.0 + Acryllic Render	R3.0	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY	1	Ceiling exhaust fan	160	Unsealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
C/P_ROOF-B012.rof #1003 © Concrete slab 200mm - Tile walking surface - no insulation - No ceiling under		50	Medium

* Refer to glossary.

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.

Accredited assessors

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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

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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.
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. 0005483672

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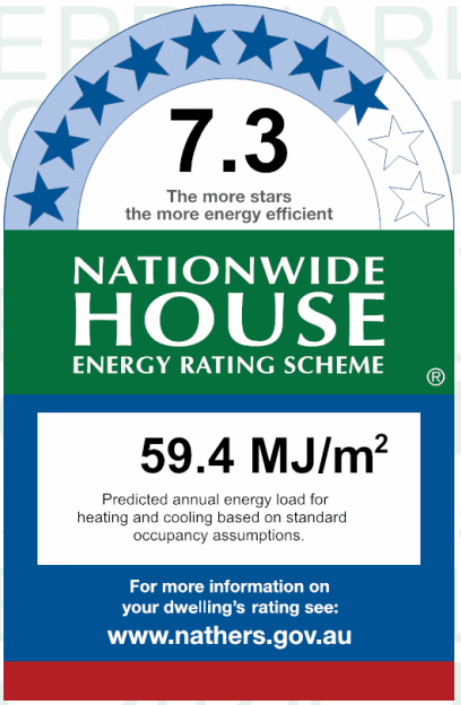

Property

Address	Unit 3, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	68.9	Suburban
Unconditioned*	0.0	**NatHERS climate zone**
Total	68.9	28
Garage		

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

Thermal performance

Heating	Cooling
42.7 MJ/m^2	16.7 MJ/m^2

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 www.hstar.com.au/QR/Generate?p=fbDivVrCg.
When using either link, ensure you are visiting www.hstar.com.au

National Construction Code (NCC) requirements

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

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

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

* 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

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-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 1	ALM-001-03 A	W09	600	2100	Awning	90	W	None
BED 1	ALM-002-03 A	D03	2700	2700	Sliding	45	N	None
BED 2	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 2	ALM-001-03 A	W09	600	2100	Awning	90	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY/BATH	2400	1000	100	E
BASEMENT	2400	5500	100	E

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-005	Plasterboard/Brick wall	50	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	3770	N		Yes
BED 1	EW-002	2700	4660	W		No
BED 1	EW-002	2700	3030	N		Yes
BED 1	EW-002	2700	400	E		Yes
ENTRY/BATH	EW-003	2700	1600	E		No
HALL/LDRY	EW-002	2700	1500	W		No
BED 2	EW-002	2700	3600	N		No
BED 2	EW-002	2700	3600	W		No
BASEMENT	EW-005	2700	28500	W		No
BASEMENT	EW-005	2700	12700	N		No
BASEMENT	EW-005	2700	28500	E		No
BASEMENT	EW-005	2700	12700	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	50.84	
IW-003	Plasterboard/Brick wall	46.74	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	25.30		R2.0	Ceramic tile
BED 1/BASEMENT	Concrete Slab 200 mm: carpet/bare R2.0 + Acryllic Render	14.10		R2.0	Carpet 10 + felt underlay 10
ENTRY/BATH/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	14.20		R2.0	Ceramic tile
HALL/LDRY/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	4.50		R2.0	Ceramic tile
BED 2/BASEMENT	Concrete Slab 200 mm: carpet/bare R2.0 + Acryllic Render	10.80		R2.0	Carpet 10 + felt underlay 10
BASEMENT/Ground	Concrete Slab 200 mm: bare/bare	352.10			

* Refer to glossary.

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/HALL/LDRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 2	Concrete Slab 200 mm: carpet/plasterboard		No
BED 1/BASEMENT	Concrete Slab 200 mm: carpet/bare R2.0 + Acryllic Render	R2.0	No
LIVING/KITCHEN/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	R2.0	No
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HALL/LDRY/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	R2.0	No
BED 2/BASEMENT	Concrete Slab 200 mm: carpet/bare R2.0 + Acryllic Render	R2.0	No
Neighbour/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	R2.0	No
Neighbour/BASEMENT	Concrete Slab 200 mm: carpet/bare R2.0 + Acryllic Render	R2.0	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY/BATH	1	Ceiling exhaust fan	160	Unsealed
HALL/LDRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
C/P_ROOF-B012.rof #1003 © Concrete slab 200mm - Tile walking surface - no insulation - No ceiling under		50	Medium

* Refer to glossary.

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Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
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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. 0005483664

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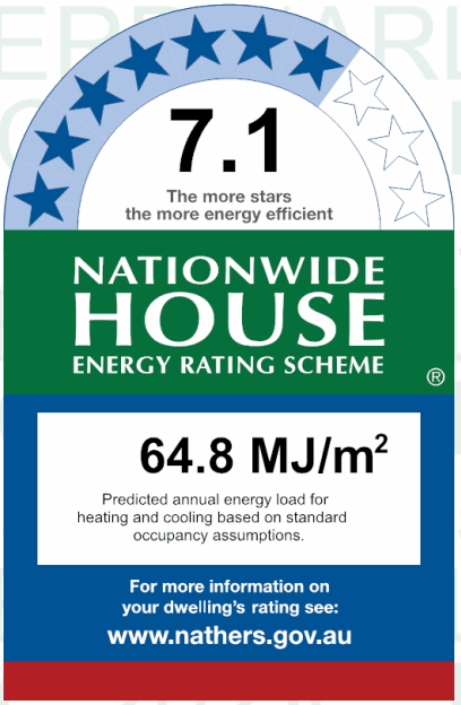

Property

Address	Unit 4, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	68.3	Suburban
Unconditioned*	0.0	**NatHERS climate zone**
Total	68.3	28
Garage		

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

Thermal performance

Heating	Cooling
36.7 MJ/m^2	28.1 MJ/m^2

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 www.hstar.com.au/QR/Generate?p=ELSXYcUcZ.
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National Construction Code (NCC) requirements

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

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

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

Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None
BED 2	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 2	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 2	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY/BATH	2400	1000	100	S
BASEMENT	2400	5500	100	E

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-005	Plasterboard/Brick wall	50	Medium		No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	4180	N		Yes
LIVING/KITCHEN	EW-002	2700	900	W		Yes
BED 1	EW-002	2700	4660	E		No
BED 1	EW-003	2700	450	S		No
BED 1	EW-003	2700	320	W		No
ENTRY/BATH	EW-002	2700	1600	E		No
ENTRY/BATH	EW-003	2700	1700	S		No
HALL/LDRY	EW-002	2700	1800	E		No
BED 2	EW-002	2700	270	W		Yes
BED 2	EW-002	2700	3600	N		Yes
BED 2	EW-002	2700	3000	E		No
BASEMENT	EW-005	2700	28500	W		No
BASEMENT	EW-005	2700	12700	N		No
BASEMENT	EW-005	2700	28500	E		No
BASEMENT	EW-005	2700	12700	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	52.70	
IW-002	Plasterboard/Concrete block	5.94	
IW-003	Plasterboard/Brick wall	30.51	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	29.10		R2.0	Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	13.80			Carpet 10 + felt underlay 10
ENTRY/BATH/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	9.20		R2.0	Ceramic tile
HALL/LDRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	5.40			Ceramic tile

* Refer to glossary.

Location	Construction	Area (m)	Sub-floor ventilation	Added insulation (R-value)	Covering
BED 2/BASEMENT	Concrete Slab 200 mm: carpet/bare R2.0 + Acryllic Render	4.30		R2.0	Carpet 10 + felt underlay 10
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	6.50			Carpet 10 + felt underlay 10
BASEMENT/Ground	Concrete Slab 200 mm: bare/bare	352.10			

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/HALL/LDRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 2	Concrete Slab 200 mm: carpet/plasterboard		No
LIVING/KITCHEN/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	R2.0	No
ENTRY/BATH/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	R2.0	No
BED 2/BASEMENT	Concrete Slab 200 mm: carpet/bare R2.0 + Acryllic Render	R2.0	No
Neighbour/BASEMENT	Concrete Slab 200 mm: ceramic tiles/bare R2.0 + Acryllic Render	R2.0	No
Neighbour/BASEMENT	Concrete Slab 200 mm: carpet/bare R2.0 + Acryllic Render	R2.0	No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY/BATH	1	Ceiling exhaust fan	160	Unsealed
HALL/LDRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
C/P_ROOF-B012.rof #1003 © Concrete slab 200mm - Tile walking surface - no insulation - No ceiling under		50	Medium

* Refer to glossary.

Explanatory notes

About this report

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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

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Disclaimer

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

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

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

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

Glossary

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

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483680

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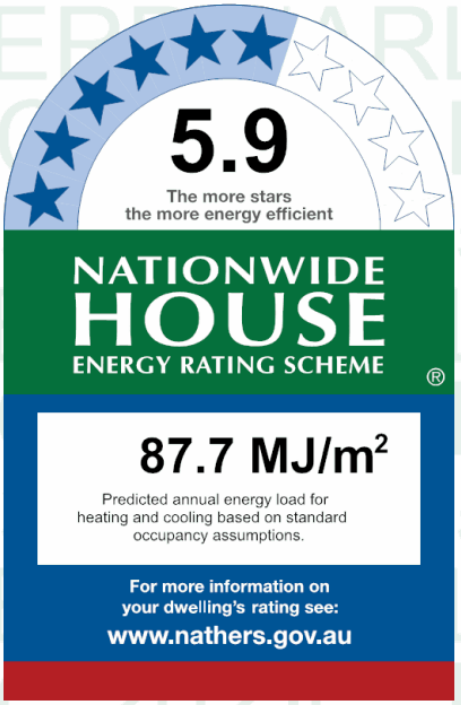

Property

Address	Unit 5, 23-25 Charles Street , Liverpool , NSW , 2170
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NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	69.2	Suburban
Unconditioned*	0.0	**NatHERS climate zone**
Total	69.2	28
Garage		

Thermal performance

Heating	Cooling
50.4 MJ/m^2	**37.2** MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

About the rating

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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.

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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".

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	W	None
LIVING/KITCHEN	ALM-002-03 A	W10	600	1500	Other	00	S	None
LIVING/KITCHEN	ALM-002-03 A	W10	600	1500	Other	00	S	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None
BED 1	ALM-002-03 A	W10	600	1500	Other	00	S	None
BED 2	ALM-002-03 A	W01	2700	900	Awning	10	E	None
BED 2	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

* Refer to glossary.

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY	2400	1000	100	N

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	4500	W		Yes
LIVING/KITCHEN	EW-002	2700	5100	S		No
BED 1	EW-002	2700	3370	E		No
BED 1	EW-002	2700	4660	S		No
ENTRY	EW-003	2700	2050	N		No
BATH	EW-002	2700	2000	W		Yes
BED 2	EW-002	2700	3000	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	53.65	
IW-002	Plasterboard/Concrete block	14.85	
IW-003	Plasterboard/Brick wall	17.55	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	21.40			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	15.70			Carpet 10 + felt underlay 10
ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	16.00			Ceramic tile
BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.00			Ceramic tile
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	10.10			Carpet 10 + felt underlay 10

* Refer to glossary.

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 2	Concrete Slab 200 mm: carpet/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY	1	Ceiling exhaust fan	160	Unsealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

Explanatory notes

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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. 0005483730

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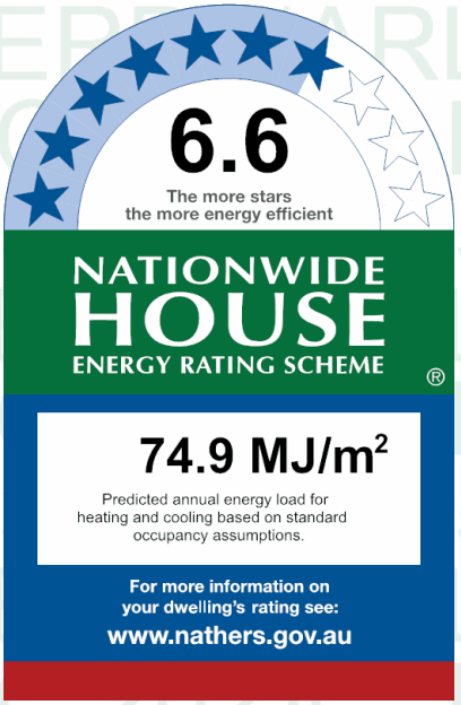

Property

Address	Unit 6, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	48.7	Suburban
Unconditioned*	0.0	**NatHERS climate zone**
Total	48.7	28
Garage		

Thermal performance

Heating	Cooling
53.4 MJ/m^2	21.5 MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=BXBTDZphk.
When using either link, ensure you are visiting www.hstar.com.au

National Construction Code (NCC) requirements

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

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

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

* 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

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-003-03 A	Aluminium A DG Air Fill High Solar Gain low-E - Clear	4.3	0.47	0.45	0.49
ALM-004-03 A	Aluminium B DG Air Fill High Solar Gain low-E - Clear	4.3	0.53	0.50	0.56

Custom* windows

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

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-004-03 A	D04	2700	1800	Sliding	45	S	None
LIVING/KITCHEN	ALM-003-03 A	W02	2700	900	Awning	10	W	None
LIVING/KITCHEN	ALM-003-03 A	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ALM-003-03 A	W02	2700	900	Awning	10	W	None
BED 1	ALM-004-03 A	D04	2700	1800	Sliding	45	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY	2400	1000	100	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	1950	S		Yes
LIVING/KITCHEN	EW-002	2700	4480	W		No
LIVING/KITCHEN	EW-002	2700	320	W		Yes
BED 1	EW-002	2700	3030	W		Yes
BED 1	EW-003	2700	100	E		No
ENTRY	EW-003	2700	2000	E		No
BATH	EW-003	2700	3000	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	34.56	
IW-003	Plasterboard/Brick wall	40.58	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	21.40			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	14.90			Carpet 10 + felt underlay 10
ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.40			Ceramic tile
BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.00			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY	1	Ceiling exhaust fan	160	Unsealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

* Refer to glossary.

Explanatory notes

About this report

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

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

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

Accredited assessors

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

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

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

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U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483706

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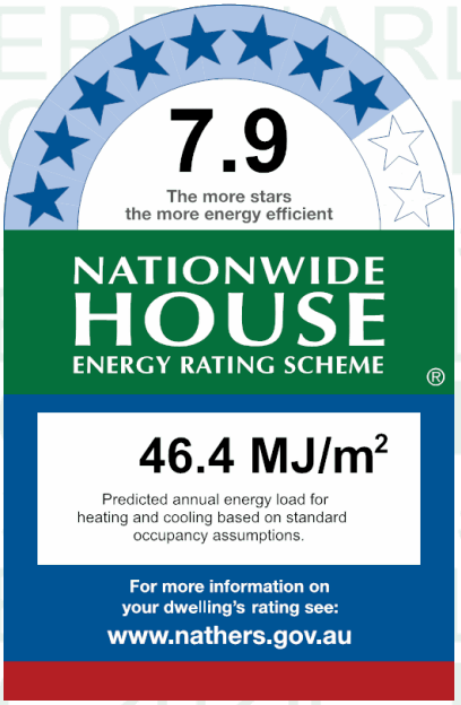

Property

Address	Unit 7, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	68.9	Suburban
Unconditioned*	0.0	**NatHERS climate zone**
Total	68.9	28
Garage		

Thermal performance

Heating	Cooling
29.0 MJ/m^2	**17.4** MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

About the rating

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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

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-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 1	ALM-001-03 A	W09	600	2100	Awning	90	W	None
BED 1	ALM-002-03 A	D03	2700	2700	Sliding	45	N	None
BED 2	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 2	ALM-001-03 A	W09	600	2100	Awning	90	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY/BATH	2400	1000	100	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	3770	N		Yes
BED 1	EW-002	2700	4660	W		No
BED 1	EW-002	2700	3030	N		Yes
BED 1	EW-002	2700	400	E		Yes
ENTRY/BATH	EW-003	2700	1600	E		No
HALL/LDRY	EW-002	2700	1500	W		No
BED 2	EW-002	2700	3600	N		No
BED 2	EW-002	2700	3600	W		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	50.84	
IW-003	Plasterboard/Brick wall	46.74	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	25.30			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	14.10			Carpet 10 + felt underlay 10
ENTRY/BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	14.20			Ceramic tile
HALL/LDRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	4.50			Ceramic tile
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	10.80			Carpet 10 + felt underlay 10

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

* Refer to glossary.

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/HALL/LDRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 2	Concrete Slab 200 mm: carpet/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY/BATH	1	Ceiling exhaust fan	160	Unsealed
HALL/LDRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

* Refer to glossary.

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.

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

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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. 0005483714

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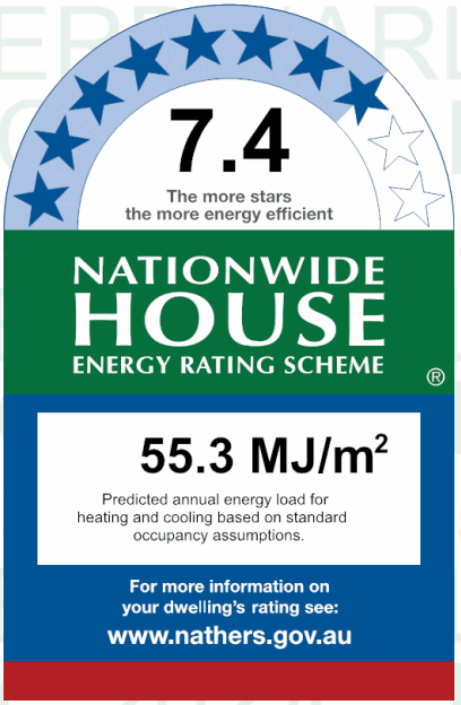

Property

Address	Unit 8, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	68.3	Suburban
Unconditioned*	0.0	**NatHERS climate zone**
Total	68.3	28
Garage		

Thermal performance

Heating	Cooling
27.2 MJ/m^2	28.1 MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=pimhphblY.
When using either link, ensure you are visiting www.hstar.com.au

National Construction Code (NCC) requirements

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

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

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

* 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

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-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None
BED 2	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 2	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 2	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY/BATH	2400	1000	100	S

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	4180	N		Yes
LIVING/KITCHEN	EW-002	2700	900	W		Yes
BED 1	EW-002	2700	4660	E		No
BED 1	EW-003	2700	450	S		No
BED 1	EW-003	2700	320	W		No
ENTRY/BATH	EW-002	2700	1600	E		No
ENTRY/BATH	EW-003	2700	1700	S		No
HALL/LDRY	EW-002	2700	1800	E		No
BED 2	EW-002	2700	270	W		Yes
BED 2	EW-002	2700	3600	N		Yes
BED 2	EW-002	2700	3000	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	52.70	
IW-002	Plasterboard/Concrete block	5.94	
IW-003	Plasterboard/Brick wall	30.51	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	29.10			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	13.80			Carpet 10 + felt underlay 10
ENTRY/BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	9.20			Ceramic tile
HALL/LDRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	5.40			Ceramic tile
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	10.80			Carpet 10 + felt underlay 10

* Refer to glossary.

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/HALL/LDRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 2	Concrete Slab 200 mm: carpet/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY/BATH	1	Ceiling exhaust fan	160	Unsealed
HALL/LDRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

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Explanatory notes

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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).
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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.
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483698

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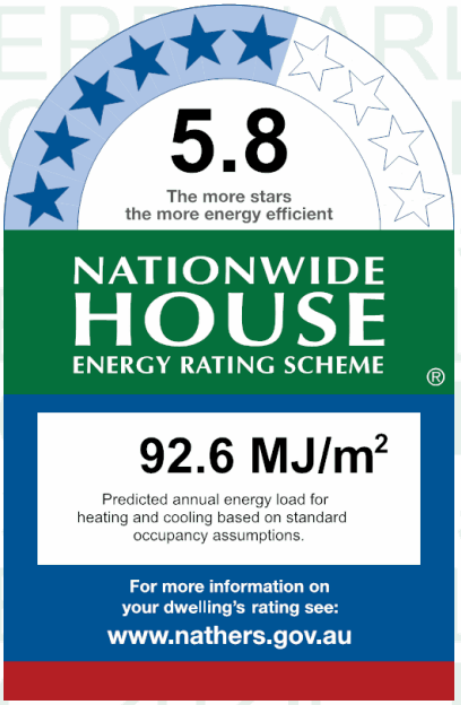

Property

Address	Unit 9, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	69.2	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	69.2	28
Garage		

Thermal performance

Heating	Cooling
58.7 MJ/m^2	33.9 MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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.

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Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	W	None
LIVING/KITCHEN	ALM-002-03 A	W10	600	1500	Other	00	S	None
LIVING/KITCHEN	ALM-002-03 A	W10	600	1500	Other	00	S	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None
BED 1	ALM-002-03 A	W10	600	1500	Other	00	S	None
BED 2	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 2	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

* Refer to glossary.

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY	2400	1000	100	N

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	4500	W		Yes
LIVING/KITCHEN	EW-002	2700	5100	S		No
BED 1	EW-002	2700	3370	E		No
BED 1	EW-002	2700	4660	S		No
ENTRY	EW-003	2700	2050	N		No
BATH	EW-002	2700	2000	W		Yes
BED 2	EW-002	2700	3000	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	53.65	
IW-002	Plasterboard/Concrete block	14.85	
IW-003	Plasterboard/Brick wall	17.55	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	21.40			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	15.70			Carpet 10 + felt underlay 10
ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	16.00			Ceramic tile
BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.00			Ceramic tile
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	10.10			Carpet 10 + felt underlay 10

* Refer to glossary.

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 2	Concrete Slab 200 mm: carpet/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY	1	Ceiling exhaust fan	160	Unsealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
BALC -B013.rof #2034 © Concrete slab 200mm - Tile walking surface - R3.0 insulation under slab - Susp. Ceiling under	R3.0	50	Medium
CONC -B013.rof #2044 © Concrete slab 200mm - WP Membrane surface - R3.0 insulation under slab - Susp. Ceiling under	R3.0	30	Light

* Refer to glossary.

Explanatory notes

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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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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. 0005483722

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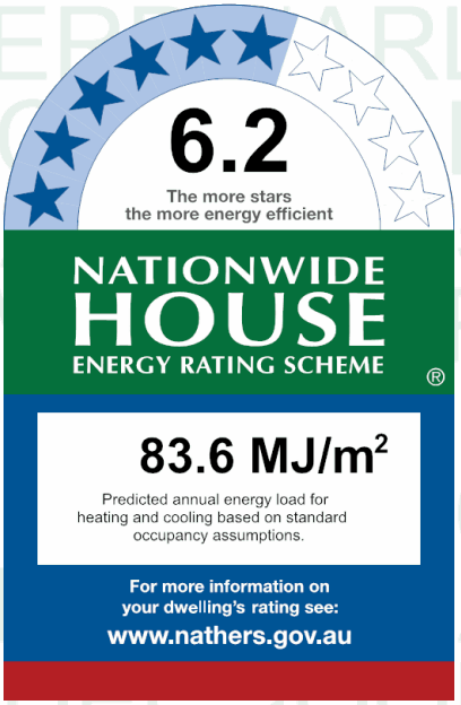

Property

Address	Unit 10, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	48.7	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	48.7	28
Garage		

Thermal performance

Heating	Cooling
59.5	**24.1**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=DCVpyMjhx.
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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

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-003-03 A	Aluminium A DG Air Fill High Solar Gain low-E - Clear	4.3	0.47	0.45	0.49
ALM-004-03 A	Aluminium B DG Air Fill High Solar Gain low-E - Clear	4.3	0.53	0.50	0.56

Custom* windows

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

* Refer to glossary.

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-004-03 A	D04	2700	1800	Sliding	45	S	None
LIVING/KITCHEN	ALM-003-03 A	W02	2700	900	Awning	10	W	None
LIVING/KITCHEN	ALM-003-03 A	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ALM-003-03 A	W02	2700	900	Awning	10	W	None
BED 1	ALM-004-03 A	D04	2700	1800	Sliding	45	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY	2400	1000	100	E

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	1950	S		Yes
LIVING/KITCHEN	EW-002	2700	4480	W		No
LIVING/KITCHEN	EW-002	2700	320	W		Yes
BED 1	EW-002	2700	3030	W		Yes
BED 1	EW-003	2700	100	E		No
ENTRY	EW-003	2700	2000	E		No
BATH	EW-003	2700	3000	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	34.56	
IW-003	Plasterboard/Brick wall	40.58	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	21.40			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	14.90			Carpet 10 + felt underlay 10
ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.40			Ceramic tile
BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.00			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY	1	Ceiling exhaust fan	160	Unsealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
CONC -B013.rof #2044 © Concrete slab 200mm - WP Membrane surface - R3.0 insulation under slab - Susp. Ceiling under	R3.0	30	Light

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Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
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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. 0005483755

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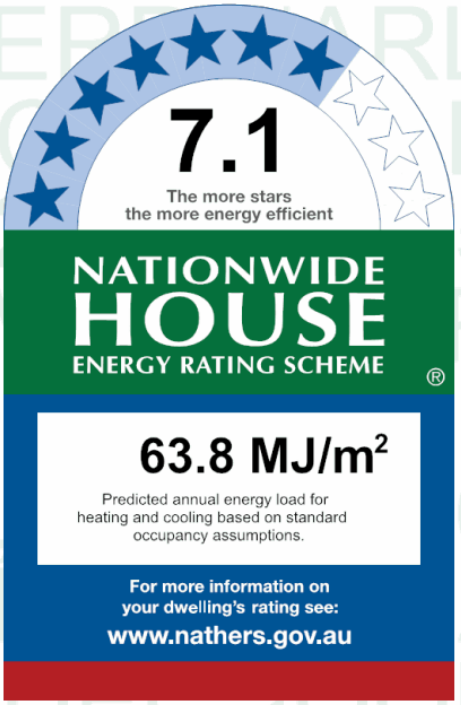

Property

Address	Unit 11, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	68.9	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	68.9	28
Garage		

Thermal performance

Heating	Cooling
45.2	**18.6**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

About the rating

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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.

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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".

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 1	ALM-001-03 A	W09	600	2100	Awning	90	W	None
BED 1	ALM-002-03 A	D03	2700	2700	Sliding	45	N	None
BED 2	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 2	ALM-001-03 A	W09	600	2100	Awning	90	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY/BATH	2400	1000	100	E

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	3770	N		Yes
BED 1	EW-002	2700	4660	W		No
BED 1	EW-002	2700	3030	N		Yes
BED 1	EW-002	2700	400	E		Yes
ENTRY/BATH	EW-003	2700	1600	E		No
HALL/LDRY	EW-002	2700	1500	W		No
BED 2	EW-002	2700	3600	N		No
BED 2	EW-002	2700	3600	W		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	50.84	
IW-003	Plasterboard/Brick wall	46.74	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	25.30			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	14.10			Carpet 10 + felt underlay 10
ENTRY/BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	14.20			Ceramic tile
HALL/LDRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	4.50			Ceramic tile
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	10.80			Carpet 10 + felt underlay 10

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/ENTRY/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY/BATH	1	Ceiling exhaust fan	160	Unsealed
HALL/LDRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
CONC -B013.rof #2044 © Concrete slab 200mm - WP Membrane surface - R3.0 insulation under slab - Susp. Ceiling under	R3.0	30	Light

* Refer to glossary.

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.

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).

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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.
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. 0005483789

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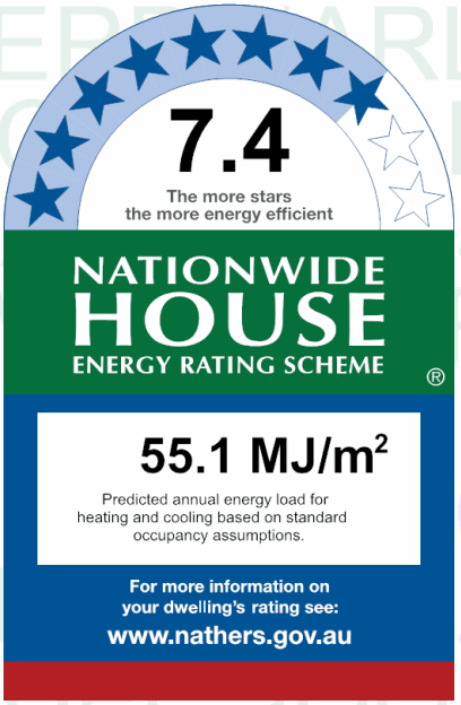

Property

Address	Unit 12, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	68.3	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	68.3	28
Garage		

Thermal performance

Heating	Cooling
30.1	**25.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=fxyAcVLsR.
When using either link, ensure you are visiting www.hstar.com.au

National Construction Code (NCC) requirements

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

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

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

Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None
BED 2	ALM-002-03 A	D02	2700	3000	Sliding	45	N	None
BED 2	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 2	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY/BATH	2400	1000	100	S

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-002	Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-002	2700	4180	N		Yes
LIVING/KITCHEN	EW-002	2700	900	W		Yes
BED 1	EW-002	2700	4660	E		No
BED 1	EW-003	2700	450	S		No
BED 1	EW-003	2700	320	W		No
ENTRY/BATH	EW-002	2700	1600	E		No
ENTRY/BATH	EW-003	2700	1700	S		No
HALL/LDRY	EW-002	2700	1800	E		No
BED 2	EW-002	2700	270	W		Yes
BED 2	EW-002	2700	3600	N		Yes
BED 2	EW-002	2700	3000	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	52.70	
IW-002	Plasterboard/Concrete block	5.94	
IW-003	Plasterboard/Brick wall	30.51	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	29.10			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	13.80			Carpet 10 + felt underlay 10
ENTRY/BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	9.20			Ceramic tile
HALL/LDRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	5.40			Ceramic tile
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	10.80			Carpet 10 + felt underlay 10

* Refer to glossary.

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/ENTRY/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/HALL/LDRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 2	Concrete Slab 200 mm: carpet/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY/BATH	1	Ceiling exhaust fan	160	Unsealed
HALL/LDRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

* Refer to glossary.

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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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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.
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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.
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483763

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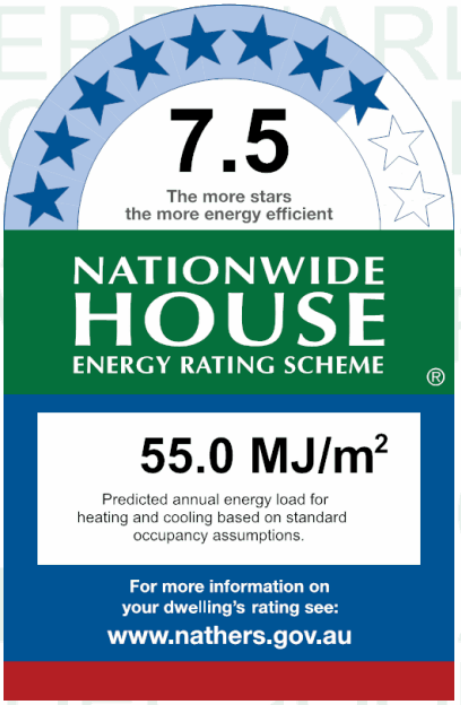

Property

Address	Unit 13, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	52.4	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	52.4	28
Garage		

Thermal performance

Heating	Cooling
34.0	**21.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=hcSWXlGsd.
When using either link, ensure you are visiting www.hstar.com.au

National Construction Code (NCC) requirements

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

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

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

* 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

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-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	W	None
LIVING/KITCHEN	ALM-002-03 A	D05	2700	1480	Sliding	45	S	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
LIVING/KITCHEN	2400	1000	100	N

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	5000	W		No
LIVING/KITCHEN	EW-001	2700	1800	S		Yes
LIVING/KITCHEN	EW-001	2700	1600	W		Yes
LIVING/KITCHEN	EW-003	2700	1950	E		No
LIVING/KITCHEN	EW-003	2700	2200	N		No
BED 1	EW-001	2700	3600	E		No
BED 1	EW-001	2700	3600	S		No
BATH	EW-001	2700	2000	W		Yes
BATH	EW-001	2700	3320	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	20.52	
IW-002	Plasterboard/Concrete block	15.12	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	33.00			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	13.00			Carpet 10 + felt underlay 10
BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.40			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

* Refer to glossary.

Explanatory notes

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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.

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.

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Disclaimer

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

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

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

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

Glossary

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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.
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Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
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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.
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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.
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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.
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483771

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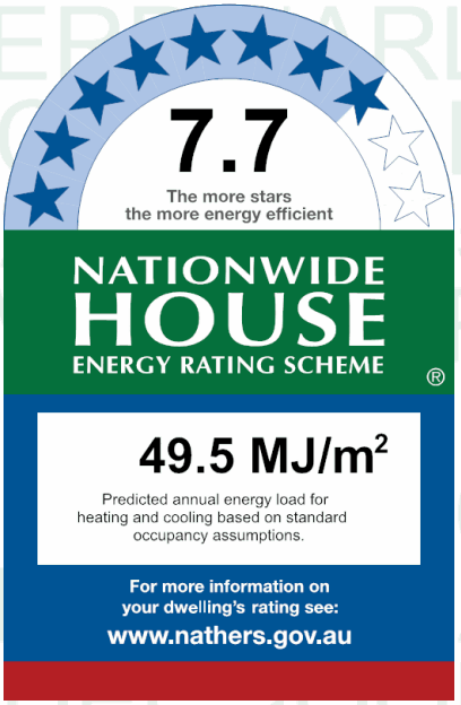

Property

Address	Unit 14, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	51.6	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	51.6	28
Garage		

Thermal performance

Heating	Cooling
22.5 MJ/m^2	27.0 MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

About the rating

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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".

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	W	None
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	W	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
BATH/ENTRY	2400	1000	100	E

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	7700	W		No
LIVING/KITCHEN	EW-001	2700	3600	N		Yes
BED 1	EW-001	2700	3035	W		No
BED 1	EW-003	2700	3035	E		No
BATH/ENTRY	EW-001	2700	3170	W		No
BATH/ENTRY	EW-003	2700	1300	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	20.74	
IW-003	Plasterboard/Brick wall	37.48	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	27.70			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	12.40			Carpet 10 + felt underlay 10
BATH/ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	11.50			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
BATH/ENTRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483748

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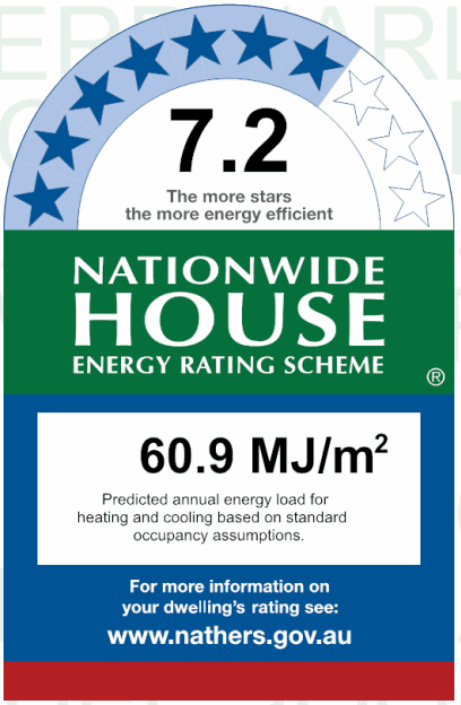

Property

Address	Unit 15, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	48.2	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	48.2	28
Garage		

Thermal performance

Heating	Cooling
22.0 MJ/m^2	**38.9** MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest	Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=GNiLAOiSX.
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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

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-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	E	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	E	None
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
BATH/ENTRY	2400	1000	100	S

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	4340	E		No
LIVING/KITCHEN	EW-001	2700	5210	N		Yes
BED 1	EW-001	2700	3000	E		No
BATH/ENTRY	EW-001	2700	1900	E		No
BATH/ENTRY	EW-003	2700	2520	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	32.67	
IW-002	Plasterboard/Concrete block	5.72	
IW-003	Plasterboard/Brick wall	26.30	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	22.60			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	11.70			Carpet 10 + felt underlay 10
BATH/ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	13.90			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
BATH/ENTRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

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.

Accredited assessors

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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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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. 0005483797

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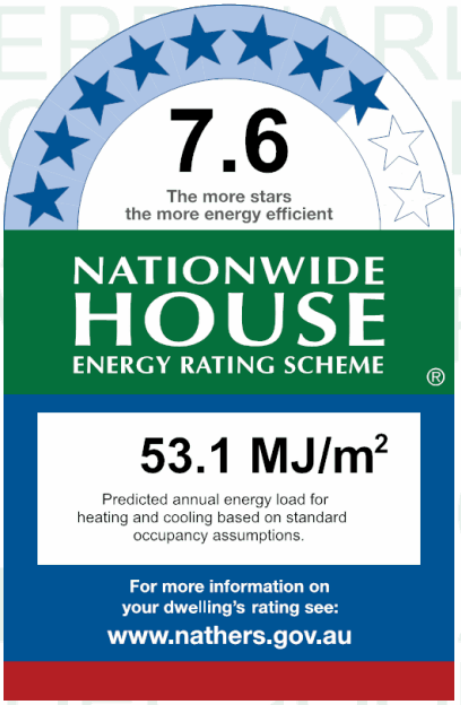

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Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	52.4	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	52.4	28
Garage		

Thermal performance

Heating	Cooling
31.5	**21.6**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

About the rating

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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?

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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.

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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".

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	W	None
LIVING/KITCHEN	ALM-002-03 A	D05	2700	1480	Sliding	45	S	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
LIVING/KITCHEN	2400	1000	100	N

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	5000	W		No
LIVING/KITCHEN	EW-001	2700	1800	S		Yes
LIVING/KITCHEN	EW-001	2700	1600	W		Yes
LIVING/KITCHEN	EW-003	2700	1950	E		No
LIVING/KITCHEN	EW-003	2700	2200	N		No
BED 1	EW-001	2700	3600	E		No
BED 1	EW-001	2700	3600	S		No
BATH	EW-001	2700	2000	W		Yes
BATH	EW-001	2700	3320	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	20.52	
IW-002	Plasterboard/Concrete block	15.12	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	33.00			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	13.00			Carpet 10 + felt underlay 10
BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.40			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

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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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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. 0005483821

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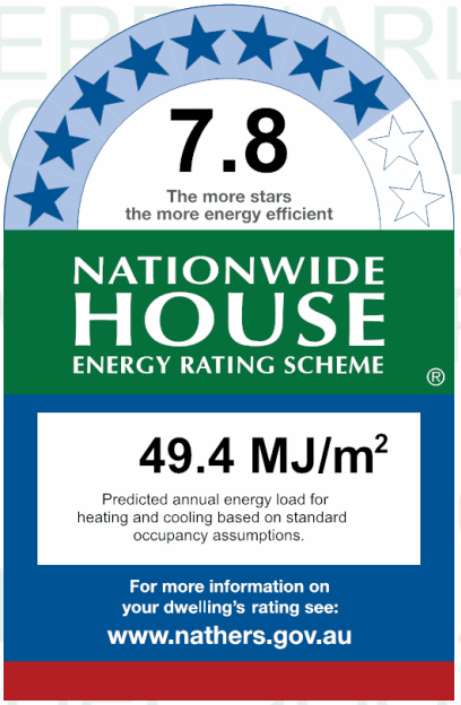

Property

Address	Unit 17, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	51.6	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	51.6	28
Garage		

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

Thermal performance

Heating	Cooling
21.5 MJ/m^2	27.9 MJ/m^2

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 www.hstar.com.au/QR/Generate?p=VDuAKOQoQ.
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National Construction Code (NCC) requirements

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

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

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

Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	W	None
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	W	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
BATH/ENTRY	2400	1000	100	E

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	7700	W		No
LIVING/KITCHEN	EW-001	2700	3600	N		Yes
BED 1	EW-001	2700	3035	W		No
BED 1	EW-003	2700	3035	E		No
BATH/ENTRY	EW-001	2700	3170	W		No
BATH/ENTRY	EW-003	2700	1300	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	20.74	
IW-003	Plasterboard/Brick wall	37.48	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	27.70			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	12.40			Carpet 10 + felt underlay 10
BATH/ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	11.50			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
BATH/ENTRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

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.

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.

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

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

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

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category – exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category – open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category – suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category – protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.
National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au.
Opening percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483862

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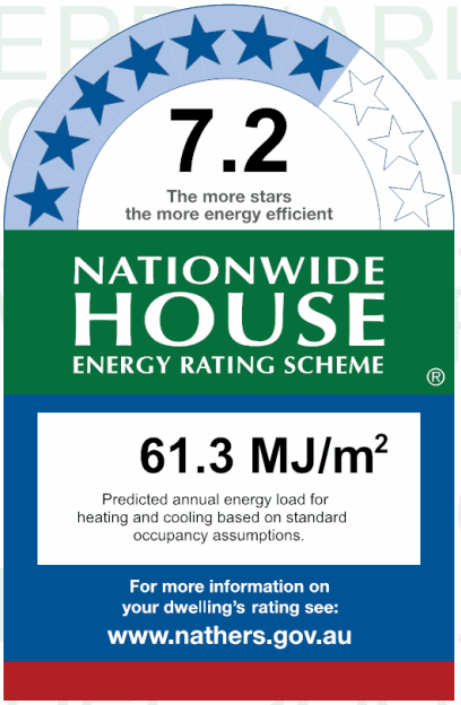

Property

Address	Unit 18, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	48.2	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	48.2	28
Garage		

Thermal performance

Heating	Cooling
22.2 MJ/m^2	39.1 MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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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National Construction Code (NCC) requirements

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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

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-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	E	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	E	None
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
BATH/ENTRY	2400	1000	100	S

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	4340	E		No
LIVING/KITCHEN	EW-001	2700	5210	N		Yes
BED 1	EW-001	2700	3000	E		No
BATH/ENTRY	EW-001	2700	1900	E		No
BATH/ENTRY	EW-003	2700	2520	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	32.67	
IW-002	Plasterboard/Concrete block	5.72	
IW-003	Plasterboard/Brick wall	26.30	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	22.60			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	11.70			Carpet 10 + felt underlay 10
BATH/ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	13.90			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
BATH/ENTRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

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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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. 0005483839

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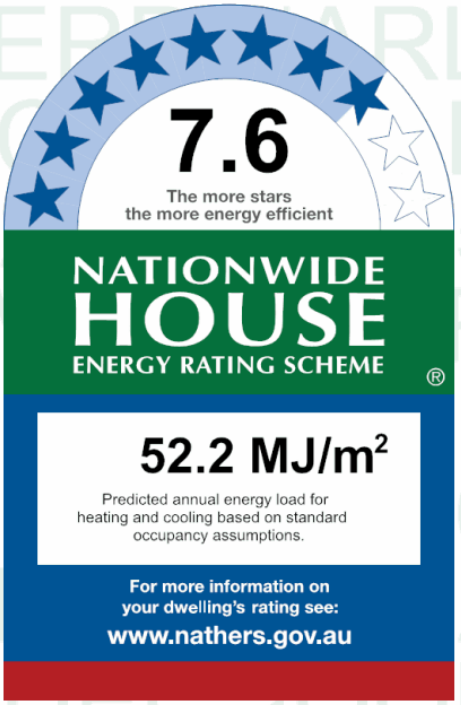

Property

Address	Unit 19, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	52.4	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	52.4	28
Garage		

Thermal performance

Heating	Cooling
30.4	**21.7**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=TwdcaFjyU.
When using either link, ensure you are visiting www.hstar.com.au

National Construction Code (NCC) requirements

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

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

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

* 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

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-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	W	None
LIVING/KITCHEN	ALM-002-03 A	D05	2700	1480	Sliding	45	S	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
LIVING/KITCHEN	2400	1000	100	N

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	5000	W		No
LIVING/KITCHEN	EW-001	2700	1800	S		Yes
LIVING/KITCHEN	EW-001	2700	1600	W		Yes
LIVING/KITCHEN	EW-003	2700	1950	E		No
LIVING/KITCHEN	EW-003	2700	2200	N		No
BED 1	EW-001	2700	3600	E		No
BED 1	EW-001	2700	3600	S		No
BATH	EW-001	2700	2000	W		Yes
BATH	EW-001	2700	3320	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	20.52	
IW-002	Plasterboard/Concrete block	15.12	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	33.00			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	13.00			Carpet 10 + felt underlay 10
BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	6.40			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

* Refer to glossary.

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
BALC -B013.rof #2034 © Concrete slab 200mm - Tile walking surface - R3.0 insulation under slab - Susp. Ceiling under	R3.0	50	Medium

* Refer to glossary.

Explanatory notes

About this report

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

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

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

Accredited assessors

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

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

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

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Disclaimer

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

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

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

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

Glossary

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

Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483854

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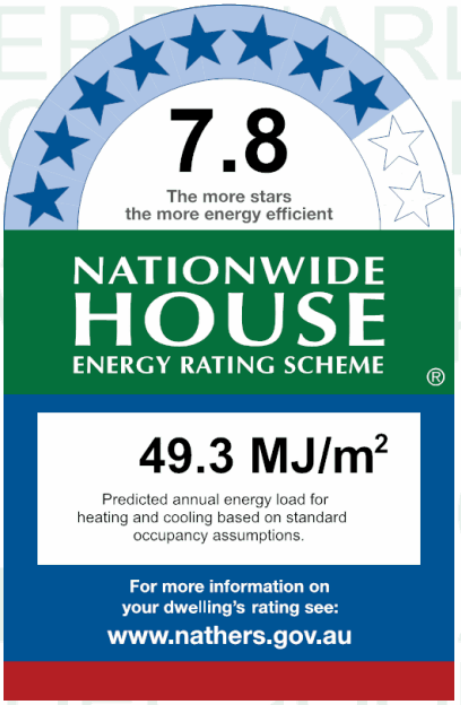

Property

Address	Unit 20, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	51.6	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	51.6	28
Garage		

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

Thermal performance

Heating	Cooling
20.7 MJ/m^2	28.6 MJ/m^2

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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National Construction Code (NCC) requirements

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

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

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

Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	W	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	W	None
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	W	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
BATH/ENTRY	2400	1000	100	E

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	7700	W		No
LIVING/KITCHEN	EW-001	2700	3600	N		Yes
BED 1	EW-001	2700	3035	W		No
BED 1	EW-003	2700	3035	E		No
BATH/ENTRY	EW-001	2700	3170	W		No
BATH/ENTRY	EW-003	2700	1300	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	20.74	
IW-003	Plasterboard/Brick wall	37.48	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	27.70			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	12.40			Carpet 10 + felt underlay 10
BATH/ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	11.50			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
BATH/ENTRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
No Data Available			

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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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.
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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. 0005483847

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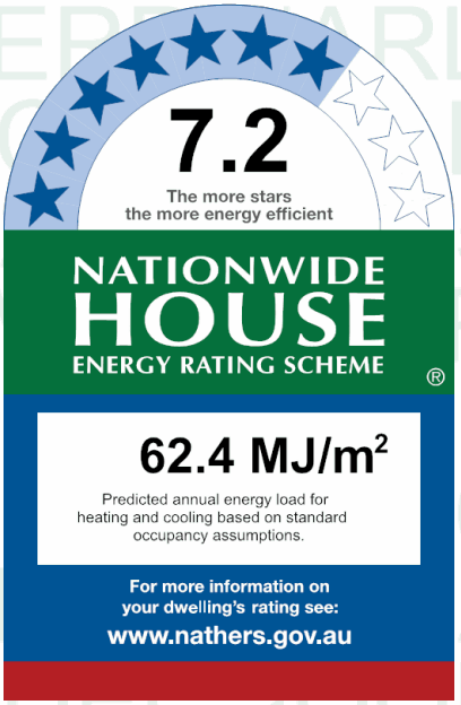

Property

Address	Unit 21, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	48.2	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	48.2	28
Garage		

Thermal performance

Heating	Cooling
23.3	**39.0**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=iqRhboPur.
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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.

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Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	E	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	E	None
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	N	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	30	E	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
BATH/ENTRY	2400	1000	100	S

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	4340	E		No
LIVING/KITCHEN	EW-001	2700	5210	N		Yes
BED 1	EW-001	2700	3000	E		No
BATH/ENTRY	EW-001	2700	1900	E		No
BATH/ENTRY	EW-003	2700	2520	S		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	32.67	
IW-002	Plasterboard/Concrete block	5.72	
IW-003	Plasterboard/Brick wall	26.30	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	22.60			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	11.70			Carpet 10 + felt underlay 10
BATH/ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	13.90			Ceramic tile

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Neighbour/LIVING/KITCHEN	Concrete Slab 200 mm: ceramic tiles/plasterboard		No
Neighbour/BED 1	Concrete Slab 200 mm: carpet/plasterboard		No
Neighbour/BATH/ENTRY	Concrete Slab 200 mm: ceramic tiles/plasterboard		No

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed

* Refer to glossary.

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
BATH/ENTRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
BALC -B013.rof #2034 © Concrete slab 200mm - Tile walking surface - R3.0 insulation under slab - Susp. Ceiling under	R3.0	50	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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Nationwide House Energy Rating Scheme
NatHERS Certificate No. 0005483888

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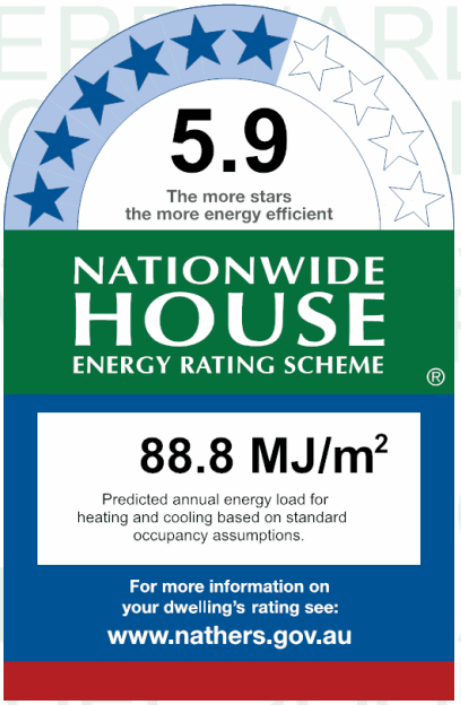

Property

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Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	74.6	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	74.6	28
Garage		

Thermal performance

Heating	Cooling
61.9 MJ/m^2	27.0 MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

About the rating

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D02	2700	3600	Sliding	45	W	None
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	S	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	10	W	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	W	None
BED 2	ALM-001-03 A	W01	2700	900	Awning	10	E	None
BED 2	ALM-001-03 A	W02	2700	900	Awning	60	E	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

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

Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY	2400	1000	100	E

* Refer to glossary.

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	4780	W		Yes
LIVING/KITCHEN	EW-001	2700	3900	S		No
LIVING/KITCHEN	EW-001	2700	1800	S		Yes
LIVING/KITCHEN	EW-001	2700	3600	W		No
LIVING/KITCHEN	EW-001	2700	250	E		No
BED 1	EW-001	2700	3500	W		No
BED 1	EW-003	2700	2350	E		No
ENTRY	EW-003	2700	2550	E		No
BATH	EW-001	2700	2450	W		No
BED 2	EW-001	2700	3000	S		No
BED 2	EW-001	2700	3600	E		No

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	44.74	
IW-002	Plasterboard/Concrete block	23.76	
IW-003	Plasterboard/Brick wall	13.77	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	39.00			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	14.60			Carpet 10 + felt underlay 10
ENTRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	4.30			Ceramic tile
BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	5.90			Ceramic tile
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	10.80			Carpet 10 + felt underlay 10

* Refer to glossary.

Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
No Data Available			

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY	1	Ceiling exhaust fan	160	Unsealed
BATH	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

Roof *type*

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
BALC -B013.rof #2034 © Concrete slab 200mm - Tile walking surface - R3.0 insulation under slab - Susp. Ceiling under	R3.0	30	Light
SOIL CONC -B013.rof #2044 © Concrete slab 200mm - WP Membrane surface - R3.0 insulation under slab - Susp. Ceiling under	R3.0	85	Dark

* Refer to glossary.

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

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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.
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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
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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.
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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. 0005483995

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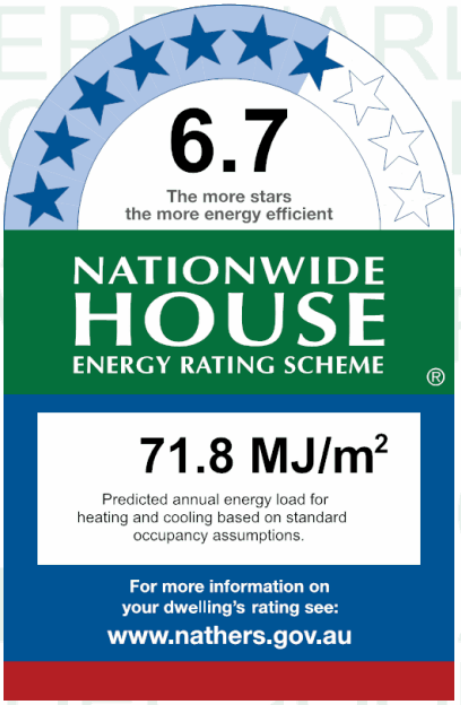

Property

Address	Unit 23, 23-25 Charles Street , Liverpool , NSW , 2170
Lot/DP	Lot 1 & 2 DP 500066
NCC Class*	2
Type	New Home

Plans

Main Plan	28705
Prepared by	Pierre Revollar

Construction and environment

Assessed floor area (m^2)*		**Exposure Type**
Conditioned*	75.3	Open
Unconditioned*	0.0	**NatHERS climate zone**
Total	75.3	28
Garage		

Thermal performance

Heating	Cooling
37.3	**34.6**
MJ/m^2	MJ/m^2

Accredited assessor

Name	Raymond Sleiman
Business name	Taylor Smith Consulting
Email	rsleiman@taylorsmith.com.au
Phone	02 9890 8002
Accreditation No.	DMN/12/1472

Assessor Accrediting Organisation

Design Matters National

Declaration of interest Declaration completed: no conflicts

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 www.hstar.com.au/QR/Generate?p=JKCEdzXda.
When using either link, ensure you are visiting www.hstar.com.au

National Construction Code (NCC) requirements

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

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

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

Certificate check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional notes

Window and glazed door *type and performance*

Default* windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
ALM-001-03 A	Aluminium A SG High Solar Gain Low-E	5.4	0.49	0.47	0.51
ALM-002-03 A	Aluminium B SG High Solar Gain Low-E	5.4	0.58	0.55	0.61

Custom* windows

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

Window and glazed door *schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
LIVING/KITCHEN	ALM-002-03 A	D01	2700	3600	Sliding	45	N	None
LIVING/KITCHEN	ALM-001-03 A	W01	2700	900	Awning	60	E	None
LIVING/KITCHEN	ALM-001-03 A	W02	2700	900	Awning	30	E	None
BED 1	ALM-001-03 A	W01	2700	900	Awning	10	W	None
BED 1	ALM-001-03 A	W02	2700	900	Awning	60	W	None
BED 2	ALM-002-03 A	D01	2700	3600	Sliding	45	N	None
BED 2	ALM-001-03 A	W01	2700	900	Awning	10	W	None
BED 2	ALM-001-03 A	W02	2700	900	Awning	60	W	None

Roof window *type and performance*

Default* roof windows

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

Custom* roof windows

Window ID	Window Description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				SHGC lower limit	SHGC upper limit
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Roof window *schedule*

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

Skylight *type and performance*

Skylight ID	Skylight description
No Data Available	

Skylight *schedule*

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

* Refer to glossary.

External door *schedule*

Location	Height (mm)	Width (mm)	Opening %	Orientation
ENTRY/BATH	2400	1000	100	S

External wall *type*

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
EW-001	Fibre-cement sheet/Brick wall/Plasterboard	50	Medium	Polystyrene expanded (k = 0.039): R0.3	Yes
EW-003	Brick wall/Plasterboard	1	Light	Polystyrene expanded (k = 0.039): R0.3	Yes

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
LIVING/KITCHEN	EW-001	2700	4700	N		Yes
LIVING/KITCHEN	EW-001	2700	6600	E		No
BED 1	EW-001	2700	3000	W		No
ENTRY/BATH	EW-003	2700	2400	S		No
ENTRY/BATH	EW-001	2700	2000	E		No
HALL/LDRY	EW-001	2700	1700	W		No
BED 2	EW-001	2700	4280	N		No
BED 2	EW-001	2700	3500	W		No
BED 2	EW-001	2700	700	E		Yes

Internal wall *type*

Wall ID	Wall type	Area (m^2)	Bulk insulation
IW-001	Plasterboard	55.65	
IW-002	Plasterboard/Concrete block	22.68	
IW-003	Plasterboard/Brick wall	14.04	

Floor *type*

Location	Construction	Area (m^2)	Sub-floor ventilation	Added insulation (R-value)	Covering
LIVING/KITCHEN/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	31.00			Ceramic tile
BED 1/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	12.80			Carpet 10 + felt underlay 10
ENTRY/BATH/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	9.20			Ceramic tile
HALL/LDRY/Neighbour	Concrete Slab 200 mm: ceramic tiles/plasterboard	7.30			Ceramic tile
BED 2/Neighbour	Concrete Slab 200 mm: carpet/plasterboard	15.00			Carpet 10 + felt underlay 10

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Ceiling *type*

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
No Data Available			

Ceiling *penetrations**

Location	Quantity	Type	Diameter (mm^2)	Sealed/unsealed
LIVING/KITCHEN	1	Ceiling exhaust fan	200	Sealed
ENTRY/BATH	1	Ceiling exhaust fan	160	Unsealed
HALL/LDRY	1	Ceiling exhaust fan	160	Unsealed

Ceiling *fans*

Location	Quantity	Diameter (mm)
LIVING/KITCHEN	1	900
BED 1	1	900
BED 2	1	900

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