6.6 Star Rating as of 11 Jul 2023

Explanatory Notes

About this report

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

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

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

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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.
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6.6 Star Rating as of 11 Jul 2023

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.
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.
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heritage trees).

Nationwide House Energy Rating Scheme NatHERS Certificate

8, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address Lot/DP NCC Class* Type

Class 2 New Home

Plans

Main plan Prepared by

Construction and environment

Assessed floor area (m²)* Conditioned* 61.1 Unconditioned* 3.9 Total 65 Garage Exposure type open NatHERS climate zone 62 Moorabbin Airport

YSSESSOF

Accredited assessor

NameMargBusiness nameArk REmailmt@aPhone03 96Accreditation No.DMNAssessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration of interest

Declaration completed: no conflicts

6.8 The more stars the more energy efficient

97 MJ/m²

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performanceHeatingCooling889MJ/m²MJ/m²

About the rating

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Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.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

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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.

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

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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

			Substitution to	plerance ranges
Window ID	Window description	Maximum U-value* SHGC*	SHGC lower limit	SHGC upper limit
No Data Availa	able			

Custom* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61	
CAP-051-06 A	Capral 35 Awning in 400 Frame DG 6EA/12Ar/6	4.42	0.41	0.39	0.43	
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5	

Window and glazed door Schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	CAP-055-52 A	Opening 41	2700	2350	fixed	0.0	W	No
Bedroom 1	CAP-051-06 A	Opening 39	2700	2000	awning	10.0	S	No

* Refer to glossary.

NatHERS Certifica	ata	6.0	Star B	ating as of	11 101 2023			
_					11 Jul 2023			
Bedroom 2	CAP-051-06 A	Opening 38	27	1	awning	10.0	S	No
Kitchen/Living	CAP-057-13 A	Opening 40	27	00 3850	sliding	45.0	W	No
			-					
Roof window	i type and pe	rformance	value	2		6		
Default* roof window	ws							
						Subst	itution toler	ance ranges
				Maximu		SHGC lo	wer limit S	HGC upper limi
Window ID No Data Available	Window des	cription		U-value	* SHGC*			
No Data Available				1				
Custom* roof windo	ws							
				Maximu		Subst	itution toler	ance ranges
Window ID	Window des	cription		U-value		SHGC Io	wer limit S	HGC upper limi
No Data Available							2.20) 	
	5.							
Roof window	l schedule							
					Area		Outdoor	Indoor
Location	Window ID	Windo	w no.	Open	ing % (m²)	Orientation	shade	shade
No Data Available								
Skylight type	and perform	nance						
Skylight ID No Data Available				Skylight	description			
NO Data Available								
Skylight sche	edule							
Okyngnit Som	curic	Skyl	aht	Skylight sh	aft Area Orio	ent- Outdoo	r 🔽	Skylight shaft
Location	Skylight ID		3	length (mr	And the second se		Diffuser	reflectance
No Data Available								
External doo	r schedule							
Location		Height (mm)	2	Width (m	m)	Opening %	Orienta	ation
No Data Available								
External wall	type							
Wall ID Wall type	x			Solar absorptar	Wall shade nce (colour)	e Bulk insulat	ion (R-value	Reflectiv e) wall wra
1 EXCON				0.5	Medium	Rockwool ba		
2 INTN				0.5	Medium	Glass fibre b		
3 FC				0.5	Medium	Rockwool ba	· ·	
External wall	schedule	*						
	Concurre					Horizonta	shading	Vertical
			Number of Street	Height Wid		feature* n	naximum	shading featur
Location			ID	200000000 00000	m) Orientation	50605000 0706400070 - 200 0 4000		(yes/no)
Bedroom 1			1		88 W	20		Yes
Bedroom 1			1	2700 31	33 S	19	9	No

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* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 8, 5-9 Wellington Road & 7 Plar Street,

Page 3 of 7

NatHERS Certificate	6.8 Star	r Rating a	is of 11	Jul 2023		
Bed 1 WIR	1	2700	1472	W	199	Yes
Bed 1 WIR	1	2700	1949	N	3878	Yes
Bed 1 Ensuite	1	2700	1597	S	244	No
Bedroom 2	1	2700	3571	S	200	No
Bedroom 2	1	2700	1797	E	3965	Yes
Bedroom 2	2	2700	1182	E	0	No
Bath	2	2700	1575	E	0	No
Kitchen/Living	3	2700	4066	w	2766	Yes
Kitchen/Living	1	2700	369	N	3878	Yes
Kitchen/Living	2	2700	4254	E	0	No
Kitchen/Living	2	2700	6113	N	0	No

Internal wall type

Wall ID	Wall type		Area (m²) Bul	lk insulation	
1	FR5 - Internal Plaste	erboard Stud Wall	53.5		

Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Bedroom 1	CONPB	11.1	Enclosed	R0.0	Carpet
Bed 1 WIR	CONPB	2.6	Enclosed	R0.0	Carpet
Bed 1 Ensuite	CONPB	4.5	Enclosed	R0.0	Tiles
Bedroom 2	CONPB	10.6	Enclosed	R0.0	Carpet
Bath	CONPB	3.9	Enclosed	R0.0	Tiles
Kitchen/Living	СОЛРВ	32.3	Enclosed	R0.0	Timber

Ceiling type

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

Ceiling penetrations*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Bed 1 Ensuite	1	Exhaust Fans	250	Sealed
Bath	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed
Kitchen/Living	1	Exhaust Fans	250	Sealed
Ceiling fans				
Location	Quantity		Diamet	er (mm)
No Data Available		-		
Roof type				
Construction	Added insulation (F	R-value) Sola	ar absorptance Ro	oof shade
* Refer to glossary.	E			Page 4 of 7

NatHERS Certificate	6.8 Star Rating as of 11 Jul 2023			
Slab:Slab - Suspended Slab : 200mm: 200 Suspended Slab	0mm 0.0	0.5	Medium	
		1		
				3
* Refer to glossary.			Page 5 of	f 7

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6.8 Star Rating as of 11 Jul 2023

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About this report

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Nationwide House Energy Rating Scheme NatHERS Certificate

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address Lot/DP NCC Class* Type

Class 2

9, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128

Plans

Main plan Prepared by

Construction and environment

New Home

Assessed floor area (m ²)*		Exposure type
Conditioned*	48.6	open
Unconditioned*	5.5	NatHERS climate zone
Total	54.1	62 Moorabbin Airport
Garage	- DAD	OTON D



ccredited assessor

Name	
Business name	
Email	
Phone	
Accreditation No.	
Assessor Accredit	ing Organi

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

sation

Declaration of interest

Declaration completed: no conflicts

70.4 MJ/m

the more energy efficient

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performance Cooling Heating 59.7 10.7 MJ/m² MJ/m²

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Additional Notes

Window and glazed door type and performance

Default* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
WIND	window description	0-value	SHGC			
No Data Availa	ble					
					the second se	

Custom* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61	
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5	

Window and glazed door Schedule

			Height	Width				shading
Location	Window ID	Window no.	(mm)	(mm)	Window type	Opening %	Orientation	device*
Bedroom 1	CAP-055-52 A	Opening 47	2700	2350	fixed	0.0	W	No
Bedroom 1	CAP-057-13 A	Opening 46	2700	2200	sliding	45.0	s	No
Kitchen/Living	CAP-057-13 A	Opening 45	2700	3278	sliding	30.0	W	No

* Refer to glossary.

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7.6 Star Rating as of 11 Jul 2023

Roof window type and performance value

		ance valu	0			
Default* roof windows						
					Substitution tol	erance ranges
Window ID	Window description		Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available	Window description		Q-Value	GIIGC		
Custom* roof windows					Pubetitution tol	
			Maximum		Substitution tol	
Window ID	Window description		U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Available						
						C
Roof window so	chedule					
				Area	Outdoo	
Location No Data Available	Window ID	Window no.	Opening	% (m²)	Orientation shade	shade
	ax					
Skylight type ar	nd porformanco					
Skylight ID	iu periornance		Skylight de	escription		
No Data Available			okyngrit de	Scription		
				A		
Skylight schedu	Ile					
okyngni oonouo		Skylight	Skylight shaft	Area_Orie	nt- Outdoor	Skylight shaft
Location	Skylight ID	No.	length (mm)	(m²) atio		
			and the second s		i onado Emideo	
No Data Available						
No Data Available	N					
No Data Available	chedule					
External door s	<i>chedule</i> Height	: (mm)	Width (mm)			itation
External door s		: (mm)				7
External door s Location No Data Available	Height	: (mm)				7
External door s	Height	: (mm)	Width (mm)		Opening % Orien	itation
External door s Location No Data Available External wall ty	Height	: (mm)	Width (mm) Solar	Wall shade	Opening % Orien	rtation
External door so Location No Data Available External wall type Wall ID Wall type	Height	: (mm)	Width (mm) Solar absorptance	Wall shade (colour)	Opening % Orien Bulk insulation (R-val	Reflective ue) wall wrap*
External door so Location No Data Available External wall type 1 EXCON	Height	: (mm)	Width (mm) Solar absorptance 0.5	Wall shade (colour) Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R	Reflective wall wrap* R2.5) No
External door so Location No Data Available External wall type 1 EXCON 2 FC	Height	: (mm)	Width (mm) Solar absorptance 0.5 0.5	Wall shade (colour) Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R	Reflective wall wrap* (2.5) No (2.5) No
External door so Location No Data Available External wall type 1 EXCON	Height	: (mm)	Width (mm) Solar absorptance 0.5	Wall shade (colour) Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Reflective wall wrap* (2.5) No (2.5) No (2.5) No (2.5) No
External door so Location No Data Available External wall type 1 EXCON 2 FC	Height	: (mm)	Width (mm) Solar absorptance 0.5 0.5	Wall shade (colour) Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Glass fibre batt (k = 0.0	Reflective wall wrap* R2.5) No R1.5) No D44 No
External door se Location No Data Available External wall type 1 Excon 2 FC 3 INTN	Height	: (mm)	Width (mm) Solar absorptance 0.5 0.5 0.5	Wall shade (colour) Medium Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Reflective wall wrap* R2.5) No R1.5) No D44 No
External door s Location No Data Available External wall type 1 EXCON 2 FC 3 INTN 4 CONS	/pe	: (mm)	Width (mm) Solar absorptance 0.5 0.5 0.5	Wall shade (colour) Medium Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Glass fibre batt (k = 0.0	Reflective wall wrap* R2.5) No R1.5) No D44 No
External door se Location No Data Available External wall type 1 EXCON 2 FC 3 INTN	/pe	: (mm)	Width (mm) Solar absorptance 0.5 0.5 0.5	Wall shade (colour) Medium Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Glass fibre batt (k = 0.0 density = 12 kg/m3) (R	Reflective wall wrap* (2.5) No (2.5) No
External door so Location No Data Available External wall type 1 EXCON 2 FC 3 INTN 4 CONS	/pe	Wall	Width (mm) Solar absorptance 0.5 0.5 0.5 0.5 0.5 Height Width	Wall shade (colour) Medium Medium Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Glass fibre batt (k = 0.0 density = 12 kg/m3) (R Horizontal shading feature* maximum	Reflective wall wrap* R2.5) No R1.5) No D44 No
External door se Location No Data Available External wall type 1 EXCON 2 FC 3 INTN 4 CONS External wall so Location	/pe		Width (mm) Solar absorptance 0.5 0.5 0.5 0.5 0.5 Height Width (mm) (mm)	Wall shade (colour) Medium Medium Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Glass fibre batt (k = 0.0 density = 12 kg/m3) (R Horizontal shading feature* maximum projection (mm)	Reflective wall wrap* (2.5) No (2.5) No
External door se Location No Data Available External wall type 1 EXCON 2 FC 3 INTN 4 CONS External wall so	/pe	Wall	Width (mm) Solar absorptance 0.5 0.5 0.5 0.5 0.5 0.5 200 2700 2997	Wall shade (colour) Medium Medium Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Glass fibre batt (k = 0.0 density = 12 kg/m3) (R Horizontal shading feature* maximum	Reflective wall wrap* 22.5) No R2.5) No R1.5) No 044 No 0.6) Vertical shading feature
External door se Location No Data Available External wall type 1 EXCON 2 FC 3 INTN 4 CONS External wall so Location	/pe	Wall	Width (mm) Solar absorptance 0.5 0.5 0.5 0.5 0.5 Height Width (mm) (mm)	Wall shade (colour) Medium Medium Medium Medium	Opening % Orien Bulk insulation (R-val Rockwool batt: R2.5 (R Rockwool batt: R2.5 (R Glass fibre batt: R1.5 (Glass fibre batt (k = 0.0 density = 12 kg/m3) (R Horizontal shading feature* maximum projection (mm)	Reflective wall wrap* (2.5) No (2.5) No

* Refer to glossary.

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 9, 5-9 Wellington Road & 7 Plar Street,

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NatHERS Certificate	7.6 Star Rating as of 11 Jul 2023	
Bedroom 1	3 2700 1961 N	0 No
Bedroom 1	1 2700 2118 N	0 Yes
Bath	3 2700 2790 E	0 No
Bath	3 2700 1967 N	0 No
Study	3 2700 2926 N	0 No
Kitchen/Living	2 2700 3368 W	2759 Yes
Kitchen/Living	3 2700 8004 S	0 No
Kitchen/Living	3 2700 924 E	0 No
Kitchen/Living	4 2700 2641 E	0 No
Kitchen/Living	3 2700 1216 N	0 No
Internal wall type		
Wall ID Wall type	Area (m ²) Bulk insulati	on
1 FR5 - Internal Plasterboard Stud Wall	32.9	
Floor type		
	Area Sub-floor	Added insulation
Location Construction	(m²) ventilation	(R-value) Covering
Bedroom 1 CONPB	12.2 Enclosed	R0.0 Carpet
Bath CONPB	5.5 Enclosed	R0.0 Tiles
Study CONPB	5.1 Enclosed	R0.0 Timber
Kitchen/Living CONPB	31.3 Enclosed	R0.0 Timber
Ceiling type		
Location Construction material/type		ation R-value (may Reflective edge batt values) wrap*
No Data Available	Include	euge buit values) whap
Ceiling penetrations*		
Location	Quantity Type	Diameter (mm) Sealed/unsealed
Bath	1 Exhaust Fans	250 Sealed
Study	1 Exhaust Fans	250 Sealed
Kitchen/Living	1 Exhaust Fans	150 Sealed
Ceiling fans		
Location	Quantity	Diameter (mm)
No Data Available		
Roof type Construction	Added insulation (R-value) Solar	absorptance Roof shade
Slab:Slab - Suspended Slab : 200mm: 200mm		
Suspended Slab	0.0	0.5 Medium
* Refer to glossan/		Page 4 of 6

6

* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 9, 5-9 Wellington Road & 7 Plar Street,

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7.6 Star Rating as of 11 Jul 2023

Explanatory Notes

About this report

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

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

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

Accredited assessors

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

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

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

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERSAdministrator. 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.

* Refer to glossary.

7.6 Star Rating as of 11 Jul 2023

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

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address 1, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128 Lot/DP NCC Class* Type

New Home

Class 2

Plans

Main plan Prepared by

Construction and environment

70

74

Assessed floor area (m²)* Conditioned* Unconditioned* Total Garage

Exposure type exposed NatHERS climate zone 62 Moorabbin Airport

Accredited assessor

Name **Business name** Email Phone Accreditation No. Assessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration of interest

Declaration completed: no conflicts

120.5 MJ/m

the more energy efficient

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performance Heating Cooling 100.8 19.7 MJ/m² 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 When using either link, ensure you are visiting www.FR5.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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
No Data Availa	ble					
			54			

Custom* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
CAP-051-07 A	Capral 35 Awning in 400 Frame DG INSU564-Clr IGU	4.42	0.2	0.19	0.21
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5
CAP-055-50 A	Capral 419 Flushline Fixed Window DG 838CPGy37/12Ar/6	2.7	0.26	0.25	0.27

Window and glazed door Schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	CAP-051-07 A	Opening 10	2700	2050	awning	10.0	W	No
Bedroom 2	CAP-057-13 A	Opening 7	2700	2679	sliding	30.0	N	No

* Refer to glossary.

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				A.				A
NatHERS Certifica	te	6.1	Star Ratin	g as of 1	1 Jul 2023			
Kitchen/Living	CAP-055-50 A	Opening 9	2700	1825	fixed	0.0	N	No
Kitchen/Living	CAP-051-07 A	Opening 12	2700	1825	awning	10.0	N	No
Kitchen/Living	CAP-055-50 A	Opening 11	2700	4299	fixed	0.0	W	No
Kitchen/Living	CAP-057-13 A	Opening 8	2700	2350	sliding	30.0	E	No
Roof window	type and pe	rformance w	alue					
Default* roof window	s					Subst	titution tol	erance ranges
			N	<i>l</i> laximun				
Window ID	Window des	cription	l	U-value*	SHGC	* SHGC IC	wer limit	SHGC upper lim
No Data Available					-			
Custom* roof window	vs					Subs	titution tol	erance ranges
			N	<i>l</i> laximun	ı			
Window ID	Window des	cription		U-value*	SHGC	* SHGC Id	wer limit	SHGC upper lim
No Data Available								
Roof window	schedule Window ID	Windo	w no.	Openii	Area ng % (m²)	Orientation	Outdoo shade	r Indoor shade
No Data Available				opone	 ,			
Skylight <i>type</i> Skylight ID No Data Available			5	Skylight	description			
Skylight <i>sche</i>	Skylight ID	Skyli No,	-	light sha gth (mm	aft Area Ori a) (m²) atio		or Diffuser	Skylight shaf
No Data Available				5	,,			
External door	schedule	Height (mm)	W	idth (mn	n)	Opening %	Orien	tation
No Data Available				N. N.	,	- pring is	-	
External wall	type							
Wall ID Wall type			ab	Solar sorptan	Wall shad ce (colour)	le Bulk insulat	tion (R-val	Reflectiv ue) wall wra
1 EXCON				0.5	Medium	Rockwool b	att: R2.5 (R	.2.5) No
2 FC				0.5	Medium	Rockwool b		
3 INTN				0.5	Medium	Glass fibre I	batt: R1.5 (R1.5) No
External wall	schedule		Wall Heig			Horizonta feature* r	naximum	Vertical shading featu
Location			ID (mm	n) (mn	n) Orientatio	n projecti	on (mm)	(yes/no)
Refer to glossary.			<					Page 3 of

6

* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 1, 5-9 Wellington Road & 7 Plar Street,

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NUMBER	EDO	0		
NatH	ERS	Cen	III	cate

6.1 Star Rating as of 11 Jul 2023

Bedroom 1	1	2700	3604	W	228	No
Bedroom 1	2	2700	2012	S	3975	Yes
Bedroom 1	3	2700	985	S	0	No
Bedroom 2	3	2700	3389	E	0	No
Bedroom 2	2	2700	3571	N	2943	Yes
Bed 2 Ensuite	3	2700	1672	E	0	No
Bath	3	2700	1597	E	0	No
Entry	3	2700	4803	s	0	No
Entry	3	2700	1391	Е	0	No
Kitchen/Living	1	2700	4090	N	253	No
Kitchen/Living	1	2700	7240	w	222	No
Kitchen/Living	2	2700	2546	E	3795	Yes

Internal wall type

Wall ID Wall type

1 FR5 - Internal Plasterboard Stud Wall

Floor type

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	10.8	Enclosed	R0.0	Carpet
Bedroom 2	CONPB	12.1	Enclosed	R0.0	Carpet
Bed 2 Ensuite	CONPB	4.6	Enclosed	R0.0	Tiles
Bath	CONPB	4	Enclosed	R0.0	Tiles
Entry	CONPB	13.9	Enclosed	R0.0	Timber
Kitchen/Living	СОЛРВ	28.6	Enclosed	R0.0	Timber

Area (m²) Bulk insulation

65.3

Ceiling type

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

Ceiling penetrations*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Bed 2 Ensuite	1	Exhaust Fans	250	Sealed
Bath	1	Exhaust Fans	250	Sealed
Entry	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed
Ceiling fans				
Location	Quantity		Diamete	er (mm)
No Data Available				

* Refer to glossary.

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6.1 Star Rating as of 11 Jul 2023

Roof type

6

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab	0.0	0.5	Medium
* Refer to glossary.			Page 5 of 7

6.1 Star Rating as of 11 Jul 2023

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

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Nationwide House Energy Rating Scheme NatHERS Certificate

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address Lot/DP NCC Class* Type

-Class 2

2, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128

Plans

Main plan Prepared by

Construction and environment

New Home

Assessed floor area (m²)*		Exposure type		
Conditioned*	61	exposed		
Unconditioned*	3.4	NatHERS climate zone		
Total	64.4	62 Moorabbin Airport		
Garage	- X/	0 1 0 7		



Accredited assessor

NameMargBusiness nameArk REmailmt@aPhone03 96Accreditation No.DMNAssessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration of interest

Declaration completed: no conflicts



65.5 MJ/m²

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performanceHeatingCooling53.512MJ/m²MJ/m²

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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

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

Custom* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61
CAP-051-06 A	Capral 35 Awning in 400 Frame DG 6EA/12Ar/6	4.42	0.41	0.39	0.43

Window and glazed door Schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	CAP-057-13 A	Opening 19	2700	2900	sliding	30.0	W	No
Bedroom 1	CAP-055-52 A	Opening 23	2700	200	fixed	0.0	w	No

* Refer to glossary

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 2, 5-9 Wellington Road & 7 Plar Street,

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NaHERS Certificat 7.8 Star Rating as of 11 Jul 2023 Bedroom 1 CAP-055-52 A Opening 20 2700 fixed 0.0 N No Bedroom 2 CAP-055-52 A Opening 20 2700 1000 N/ No Bedroom 2 CAP-055-52 A Opening 22 2700 3100 silding 30.0 N No Kitchen/Living CAP-057-13 A Opening 18 2700 3100 silding 30.0 N No Roof windows Substitution tolerance ranges Window ID Window description Maximum SHGC SHGC lower limit SHGC upper limit No Data Available Window description Maximum SHGC lower limit SHGC upper limit No Data Available Window description Maximum SHGC lower limit SHGC upper limit Substitution tolerance ranges Window ID Window no. Opening % (m*) Orientation shade Substitution tolerance ranges Window ID Window no. Opening % (m*) Orientation shade
Bedroom 1 CAP-055-52 A Opening 20 2700 fixed 0.0 N No Bedroom 2 CAP-055-52 A Opening 22 2700 1100 awning 10.0 N No Kitchen/Living CAP-055-52 A Opening 22 2700 900 fixed 0.0 E No Kitchen/Living CAP-057-13 A Opening 18 2700 3100 sliding 30.0 N No Kitchen/Living CAP-057-13 A Opening 18 2700 3100 sliding 30.0 N No Roof windows Substitution tolerance ranges Window ID Window description Maximum U-value* SHGC SHGC upper lim No Data Available Window description Waximum U-value* SHGC SHGC upper lim No Data Available Window description Window no Opening % (m') Ortenation shade No Substitution tolerance ranges Shylight type and performance Skylight shat Area Outdoor Indoor <tr< td=""></tr<>
Bedroom 2 CAP-067-06 A Opening 20 2700 1100 awning 10.0 N No Kitchen/Living CAP-055-52 A Opening 12 2700 900 fixed 0.0 E No Kitchen/Living CAP-055-73 A Opening 18 2700 3100 sliding 30.0 N No Roof window type and performance value Default' roof windows Substitution tolerance ranges Window ID Window description U-value* SHGC lower limit SHGC upper limit No Data Available Window ub Window description Maximum SHGC lower limit SHGC upper limit No Data Available Window ub Window description Maximum SHGC lower limit SHGC upper limit No Data Available Window ub Window no. Opening % (m²) Outdoor Indoor Skylight type and performance Skylight description No Skylight shatt Area Outdoor Indoor No Data Available Skylight shatt Area Outdoor Skylight shatt Skylight shat Maximum
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Kitchen/Living CAP-057-13 A Opening 18 2700 3100 sliding 30.0 N No Roof Window type and performance value Default' roof windows Window ID Window description Maximum U-value* Substitution tolerance ranges Window ID Window description Maximum U-value* SHGC lower limit SHGC upper limit No Data Available Window description Maximum U-value* SHGC lower limit SHGC upper limit No Data Available Window ID Window description Maximum U-value* SHGC lower limit SHGC upper limit No Data Available SHGC lower limit SHGC lower limit SHGC upper limit SHGC upper limit No Data Available Skylight Mow ID Window no. Opening % (m²) Ortentation shade shade Skylight ID Skylight description No. Skylight shaft Area Outdoor Indoor No Data Available Skylight shaft Area Ortentation Skylight shaft Shift upper and Skylight ID Skylight Skylight shaft Area Outdoor Shift upper entities Skylight shaft
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Befault' roof windows Window ID Window description Maximum U-value* SHGC*
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No Data Available External door schedule Width (mm) Opening % Orientation
External door <i>schedule</i> Location Height (mm) Width (mm) Opening % Orientation
Location Height (mm) Width (mm) Opening % Orientation
Location Height (mm) Width (mm) Opening % Orientation
External wall type
Solar Wall shade Reflectiv
Wall ID Wall type absorptance (colour) Bulk insulation (R-value) wall wra
1 INTN 0.5 Medium Glass fibre batt: R1.5 (R1.5) No
2 EXCON 0.5 Medium Rockwool batt: R2.5 (R2.5) No
2 EXCON 0.5 Medium Rockwool batt: R2.5 (R2.5) No 3 FC 0.5 Medium Rockwool batt: R2.5 (R2.5) No
2 EXCON 0.5 Medium Rockwool batt: R2.5 (R2.5) No 3 FC 0.5 Medium Rockwool batt: R2.5 (R2.5) No External wall schedule Violation Violation Violation Violation
2 EXCON 0.5 Medium Rockwool batt: R2.5 (R2.5) No 3 FC 0.5 Medium Rockwool batt: R2.5 (R2.5) No
2 EXCON 0.5 Medium Rockwool batt: R2.5 (R2.5) No 3 FC 0.5 Medium Rockwool batt: R2.5 (R2.5) No External wall schedule Horizontal shading Vertical

* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 2, 5-9 Wellington Road & 7 Plar Street,

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NatHERS Certificate	7.8 Sta	r Rating a	is of 11	Jul 202	3	
Bedroom 1	1	2700	3008	W	5538	Yes
Bedroom 1	1	2700	4835	E	0	No
Bedroom 1	2	2700	2366	E	3650	Yes
Bedroom 1	2	2700	3398	N	198	No
Bed 1 Ensuite	1	2700	889	S	0	No
Bed 1 Ensuite	1	2700	460	W	0	No
Bed 1 Ensuite	1	2700	1490	S	0	No
Bed 1 Ensuite	1	2700	1701	E	0	No
Bedroom 2	3	2700	1918	N	3462	Yes
Bath	1	2700	2509	S	0	No
Bath	1	2700	454	E	0	No
Kitchen/Living	1	2700	3901	s	0	No
Kitchen/Living	3	2700	1066	Е	1715	Yes
Kitchen/Living	3	2700	3584	Ν	2395	Yes
Kitchen/Living	2	2700	332	W	3648	Yes
Kitchen/Living	1	2700	6621	W	0	No

Internal wall type

 Wall ID
 Wall type
 Area (m²)
 Bulk insulation

 1
 FR5 - Internal Plasterboard Stud Wall
 58.5

Floor type

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	17.7	Enclosed	R0.0	Carpet
Bed 1 Ensuite	CONPB	3,6	Enclosed	R0.0	Tiles
Bedroom 2	CONPB	10.7	Enclosed	R0.0	Carpet
Bath	CONPB	3.4	Enclosed	R0.0	Tiles
Hall	CONPB	3.7	Enclosed	R0.0	Timber
Kitchen/Living	СОЛРВ	25.2	Enclosed	R0.0	Timber

Ceiling type

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

Ceiling penetrations*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Bed 1 Ensuite	1	Exhaust Fans	250	Sealed
Bath	1	Exhaust Fans	250	Sealed
Hall	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed

* Refer to glossary.

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 2, 5-9 Wellington Road & 7 Plar Street,

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	NatHERS Certificate	7.8 Star Rating as of 11 Jul 2023	
	Ceiling fans		
	Location	Quantity	Diameter (mm)
	No Data Available		
	Roof type		
	Construction	Added insulation (R-value) Sola	r absorptance Roof shade
	Slab:Slab - Suspended Slab : 200mm: 200mm	0.0	0.5 Medium
	Suspended Slab		
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2			
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	* Refer to glossary		Page 5 of 7

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7.8 Star Rating as of 11 Jul 2023

Explanatory Notes

About this report

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

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

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

Accredited assessors

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

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

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

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERSAdministrator. 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.

* Refer to glossary.

7.8 Star Rating as of 11 Jul 2023

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

3, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address Lot/DP NCC Class* Type

Class 2

Plans

Main plan Prepared by

Construction and environment

New Home

Assessed floor area (m²)* Conditioned* 70 Unconditioned* 4 Total 74 Garage _ Exposure type exposed NatHERS climate zone 62 Moorabbin Airport

Togesson

Accredited assessor

NameMargaBusiness nameArk REmailmt@aPhone03 96Accreditation No.DMN/Assessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration of interest

Declaration completed: no conflicts

116 MJ/m²

the more energy efficient

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performanceHeatingCooling99.516,5MJ/m²MJ/m²

About the rating

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

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Availa	ble				
			54		

Custom* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
CAP-051-07 A	Capral 35 Awning in 400 Frame DG INSU564-Clr IGU	4.42	0.2	0.19	0.21
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5
CAP-055-50 A	Capral 419 Flushline Fixed Window DG 838CPGy37/12Ar/6	2.7	0.26	0.25	0.27

Window and glazed door Schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	CAP-051-07 A	Opening 10	2700	2037	awning	10.0	E	No
Bedroom 2	CAP-057-13 A	Opening 7	2700	2679	sliding	30.0	N	No

* Refer to glossary.

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				A.				
NatHERS Certifi	cate	6.3	Star Ratin	g as of 1	1 Jul 2023			
Kitchen/Living	CAP-057-13 A	Opening 8	2700	2300	sliding	30.0	w	No
Kitchen/Living	CAP-055-50 A	Opening 11	2700	4309	fixed	0.0	E	No
Kitchen/Living	CAP-055-50 A	Opening 9	2700	1825	fixed	0.0	N	No
Kitchen/Living	CAP-051-07 A	Opening 12	2700	1825	awning	10.0	N	No
Roof window	w type and pe	rformance v	alue					
Default* roof windo								
Delault Tool wind	ows					Subs	titution tol	erance ranges
			-	<i>N</i> aximum	N	SHGC Id	wer limit	SHGC upper lin
Window ID No Data Available	Window des	cription	i.	U-value*	SHGC			
No Data Available								
Custom* roof wind	lows					Dulka		
				<i>l</i> laximum				erance ranges
Window ID	Window des	cription		U-value*	SHGC	* SHGC Id	ower limit	SHGC upper lin
No Data Available	•							
Roof window	N schedule							
ocation	Window ID	Window	v no	Openir	Area Ig % (m²)	Orientation	Outdoo shade	r Indoor shade
No Data Available			110.	operin	g // (/	Chronicalion	Sinds	onuue
Skylight typ	e and perform	nance						
Skylight ID			5	Skylight	description			
No Data Available			_					
Skylight sch	neaule	Skylig	iht Sky	light cha	ft Area Or	ient- Outdoo	.r	Skylight sha
Location	Skylight ID			ight (mm			Diffuse	A CONTRACT OF
No Data Available	,							
External doo	or <i>schedule</i>							
Location		Height (mm)	W	idth (mn		Opening %	Orien	tation
No Data Available	•							
External wa	I tuno							
LAternal wa	in type			Solar	Wall shad	le	$\langle \rangle$	Reflecti
Wall ID Wall typ	be		ab	sorptand	e (colour)	Bulk insulat	tion (R-val	Number of Contract
1 INTN				0.5	Medium	Glass fibre l	oatt: R1.5 (R1.5) No
2 FC				0.5	Medium	Rockwool b	att: R2.5 (F	(2.5) No
3 EXCON	1			0.5	Medium	Rockwool b	att: R2.5 (F	2.5) No
External wa	schedule							
			Wall Heig				l shading naximum	Vertical shading featu
Location				ini vuiri	n	Teature* P		
			ID (mn	and the second s	n) Orientatio			(yes/no)
Refer to glossar			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	and the second s				

* Refer to glossary.

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Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 3, 5-9 Wellington Road & 7 Plar Street,

Page 3 of 7

NatHERS Certificate	6.3 St	ar Rating	as of 11 J	ul 2023		
Bedroom 1	1	2700	510	S	0	No
Bedroom 1	2	2 2700	2487	s	3092	Yes
Bedroom 1	3	3 2700	3604	E	188	No
Bedroom 2	2	2 2700	3571	N	2925	Yes
Bedroom 2	1	2700	3389	W	0	No
Bed 2 Ensuite	1	2700	1672	W	0	No
Bath	1	2700	1597	W	0	No
Entry	1	2700	1391	w	0	No
Entry	1	2700	4803	s	0	No
Kitchen/Living	2	2 2700	2546	w	3795	Yes
Kitchen/Living	3	3 2700	7240	E	182	No
Kitchen/Living	3	3 2700	4090	N	235	No

Internal wall type

Wall ID Wall type Area (m²) Bulk insulation 1 FR5 - Internal Plasterboard Stud Wall 65.3

Floor type

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	10.8	Enclosed	R0.0	Carpet
Bedroom 2	CONPB	12.1	Enclosed	R0.0	Carpet
Bed 2 Ensuite	CONPB	4.6	Enclosed	R0.0	Tiles
Bath	CONPB	4	Enclosed	R0.0	Tiles
Entry	CONPB	13.9	Enclosed	R0.0	Timber
Kitchen/Living	CONPB	28.6	Enclosed	R0.0	Timber

Ceiling type

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

Ceiling penetrations*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Bed 2 Ensuite	1	Exhaust Fans	250	Sealed
Bath	1	Exhaust Fans	250	Sealed
Entry	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed
Ceiling fans				
Location	Quantity		Diamete	er (mm)
No Data Available				

* Refer to glossary.

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6.3 Star Rating as of 11 Jul 2023

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab	0.0	0.5	Medium
		12	
* Refer to glossary.			Page 5 of 7

6.3 Star Rating as of 11 Jul 2023

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.

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

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERSAdministrator. 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.

* Refer to glossary.

6.3 Star Rating as of 11 Jul 2023

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

4, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address Lot/DP NCC Class* Type

Class 2 New Home

Plans

Main plan Prepared by

Construction and environment

Assessed floor area (m²)* Conditioned* 46.3 Unconditioned* 6.4 Total 52.7 Garage

3 ex Na 7 62

Exposure type exposed NatHERS climate zone 62 Moorabbin Airport

Ac

Accredited assessor

NameMargBusiness nameArk REmailmt@aPhone03 96Accreditation No.DMNAssessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration of interest Declar

Declaration completed: no conflicts

80.7 MJ/m²

the more energy efficient

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performanceHeatingCooling60.620.1MJ/m²MJ/m²

About the rating

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

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Availat	ble				

Custom* windows

				Substitution to	lierance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61

Window and glazed door Schedule

								window
			Height	Width				shading
Location	Window ID	Window no.	(mm)	(mm)	Window type	Opening %	Orientation	device*
Bedroom 1	CAP-057-13 A	Opening 15	2700	2350	sliding	45.0	E	No
Kitchen/Living	CAP-055-52 A	Opening 17	2700	3250	fixed	0.0	E	No
Kitchen/Living	CAP-057-13 A	Opening 16	2700	2470	sliding	45.0	N	No

* Refer to glossary.

ŝ

Roof window type and performance value

Default* roof windows					Orthesti		
			Maximum			tution tolera	
Window ID	Window description		U-value*	SHGC*	SHGC lov	ver limit SH	IGC upper limit
No Data Available							
						1	
Custom* roof windows					Substit	tution tolera	ince ranges
			Maximum				
Window ID	Window description		U-value*	SHGC*	SHGC lov	ver limit SF	IGC upper limit
No Data Available							
Roof window so	chedule						
1 and an	Window ID	Mindauras		Area	And an address of the second	Outdoor	Indoor
Location No Data Available	Window ID	Window no.	Opening %	(m²)	Orientation	shade	shade
	ax 0.5						
Skulight type of	nd performance						
Skylight ID	iu periornance		Skylight desc	rintion			
No Data Available			Okyngin uesel	iption			
				6			
Skylight schedu	Ile						
Okylight Schede		Cladiabt					
		SKVIIGHI	Skylight shaft A	rea Orio	ent- Outdoor		Skylight shaft
Location	Skylight ID	Skylight No.	Skylight shaft A length (mm) (i	rea Orio m²) atio		Diffuser	Skylight shaft reflectance
Location No Data Available	Skylight ID	500 00 000 000 000 000 000 000 000 000					and the second
	Skylight ID	500 00 000 000 000 000 000 000 000 000					and the second
	N	500 00 000 000 000 000 000 000 000 000					and the second
No Data Available	N	No.					reflectance
No Data Available External door s	chedule	No.	length (mm) (i		on shade	Diffuser	reflectance
No Data Available External door s Location	chedule	No.	length (mm) (i		on shade	Diffuser	reflectance
No Data Available External door s Location	chedule Height	No.	length (mm) (i		on shade	Diffuser	reflectance
No Data Available External door s Location No Data Available External wall ty	chedule Height	No.	length (mm) (i Width (mm) Solar W	m²) atio	on shade Opening %	Diffuser	ion
No Data Available External door s Location No Data Available External wall type Wall ID Wall type	chedule Height	No.	length (mm) (i Width (mm) Solar W absorptance (c	m²) atio	on shade Opening % e Bulk insulati	Diffuser Orientat	reflectance
No Data Available External door s Location No Data Available External wall type 1 FC	chedule Height	No.	length (mm) (Width (mm) Solar W absorptance (c 0.5 M	all shade olour) edium	on shade Opening % e Bulk insulati Rockwool bar	Diffuser Orientat on (R-value) tt: R2.5 (R2.5	reflectance
No Data Available External door s Location No Data Available External wall ty Wall ID Wall type 1 FC 2 INTN	chedule Height	No.	length (mm) (Width (mm) Solar W absorptance (c 0.5 M 0.5 M	all shade olour) edium edium	on shade Opening % e Bulk insulati Rockwool bat Glass fibre ba	Diffuser Orientat on (R-value) tt: R2.5 (R2.5 att: R1.5 (R1	reflectance ion Reflective wall wrap* 5) No .5) No
No Data Available External door s Location No Data Available External wall type 1 FC	chedule Height	No.	length (mm) (Width (mm) Solar W absorptance (c 0.5 M 0.5 M	all shade olour) edium	on shade Opening % e Bulk insulati Rockwool bar	Diffuser Orientat on (R-value) tt: R2.5 (R2.5 att: R1.5 (R1	reflectance ion Reflective wall wrap* 5) No .5) No
No Data Available External door s Location No Data Available External wall ty Wall ID Wall type 1 FC 2 INTN 3 EXCON	chedule Height	No.	length (mm) (Width (mm) Solar W absorptance (c 0.5 M 0.5 M	all shade olour) edium edium	on shade Opening % e Bulk insulati Rockwool bat Glass fibre ba	Diffuser Orientat on (R-value) tt: R2.5 (R2.5 att: R1.5 (R1	reflectance ion Reflective wall wrap* 5) No .5) No
No Data Available External door s Location No Data Available External wall ty Wall ID Wall type 1 FC 2 INTN	chedule Height	No.	length (mm) (Width (mm) Solar W absorptance (c 0.5 M 0.5 M	all shade olour) edium edium	on shade Opening % e Bulk insulati Rockwool bat Rockwool bat	Diffuser Orientat on (R-value) tt: R2.5 (R2.5 att: R1.5 (R1 tt: R2.5 (R2.5	reflectance ion Reflective wall wrap* 5) No .5) No .5) No
No Data Available External door s Location No Data Available External wall ty Wall ID Wall type 1 FC 2 INTN 3 EXCON	chedule Height	No.	length (mm) (Width (mm) Solar W absorptance (c 0.5 M 0.5 M 0.5 M	all shade olour) edium edium	on shade Opening % e Bulk insulati Rockwool bat Glass fibre ba Rockwool bat	Diffuser Orientat on (R-value) tt: R2.5 (R2.5 att: R1.5 (R1 tt: R2.5 (R2.5 shading V	reflectance ion Reflective wall wrap* 5) No 5) No 5) No 400 5) No
No Data Available External door s Location No Data Available External wall ty Wall ID Wall type 1 FC 2 INTN 3 EXCON	chedule Height	No.	length (mm) (Width (mm) (Solar absorptance W 0.5 M	all shade olour) edium edium	on shade Opening % e Bulk insulati Rockwool bat Glass fibre bat Rockwool bat Horizontal feature* m	Diffuser Orientat on (R-value) tt: R2.5 (R2.5 att: R1.5 (R1 tt: R2.5 (R2.5 shading V aximum s	reflectance ion Reflective wall wrap* 5) No 5) No 5) No 6) No
No Data Available External door s Location No Data Available External wall type 1 FC 2 INTN 3 EXCON External wall so	chedule Height	No. (mm)	length (mm) (Width (mm) Solar W absorptance (c 0.5 M 0.5 M 0.5 M	all shade olour) edium edium	on shade Opening % e Bulk insulati Rockwool bat Glass fibre bat Rockwool bat Horizontal feature* m	Diffuser Orientat on (R-value) tt: R2.5 (R2.5 att: R1.5 (R1 tt: R2.5 (R2.5 shading V aximum s n (mm) (1)	reflectance ion Reflective wall wrap* 5) No 5) No 5) No 400 5) No
No Data Available External door s Location No Data Available External wall type 1 FC 2 INTN 3 EXCON External wall so Location	chedule Height	No. (mm) Wall	length (mm) (i Width (mm) (i Solar (mm) W absorptance (c (i 0.5 M Midth (mm) M	all shade olour) edium edium	on shade Opening % e Bulk insulati Rockwool bat Glass fibre ba Rockwool bat Horizontal feature* m n projection	Diffuser Orientat on (R-value) tt: R2.5 (R2.9 att: R1.5 (R1 tt: R2.5 (R2.9 att: R2.5 (R2.9 att: R2.5 (R2.9 att: R1.5 (R1 tt: R2.5 (R2.9) att: R2.7 (R2.9) att:	reflectance ion Reflective wall wrap* 5) No 5) No 5) No 5) No 4 4 5) No 5) No 5) No 5) No 5) No

* Refer to glossary.

Bath

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 4, 5-9 Wellington Road & 7 Plar Street,

2

2700

2491 N

No

0

NatHERS Certificate	7.3 Star	Rating a	s of 11 J	ul 2023		
Kitchen/Living	2	2700	2328	W	0	No
Kitchen/Living	2	2700	1319	S	0	No
Kitchen/Living	2	2700	2374	W	0	No
Kitchen/Living	2	2700	2526	s	0	No
Kitchen/Living	3	2700	5499	s	0	Yes
Kitchen/Living	3	2700	3893	E	196	No
Kitchen/Living	1	2700	2710	N	3101	Yes
Internal wall type						
Wall ID Wall type 1 FR5 - Internal Plasterboard Stud Wall				Bulk insulati	on	
1 FR5 - Internal Plasterboard Stud Wall			27.3			
Floor type						
riour type			Area	Sub-floor	Added insulat	tion
Location Construction			(m²)	ventilation	(R-value)	Covering
Bedroom 1 CONPB		· .	12.1	Enclosed	R0.0	Carpet
Bath CONPB			6.4	Enclosed	R0.0	Tiles
Kitchen/Living CONPB			34.2	Enclosed	R0.0	Timber
Ceiling type				Bulk insu	lation R-value (may	Reflective
Location Construction material/type	e				edge batt values)	wrap*
No Data Available		·				
No Data Available Ceiling penetrations*				7	1	
Ceiling <i>penetrations</i> *		Quantity				Sealed/unsealed
Ceiling penetrations* Location Bath		1	Exha	ust Fans	250	Sealed
Ceiling penetrations* Location Bath Kitchen/Living		1	Exha Exha	ust Fans ust Fans	250 250	Sealed Sealed
Ceiling penetrations* Location Bath		1	Exha Exha	ust Fans	250 250	Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living		1	Exha Exha	ust Fans ust Fans	250 250	Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans		1	Exha Exha Exha	ust Fans ust Fans	250 250 150	Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans Location		1	Exha Exha Exha	ust Fans ust Fans	250 250	Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans		1	Exha Exha Exha	ust Fans ust Fans	250 250 150	Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans Location No Data Available		1	Exha Exha Exha	ust Fans ust Fans	250 250 150	Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans Location	Added	1	Exha Exha Exha	uust Fans nust Fans nust Fans	250 250 150 Diameter	Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans Location No Data Available Roof type	Added	1 1 1 Quantity	Exha Exha Exha	uust Fans nust Fans nust Fans	250 250 150 Diameter	Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans Location No Data Available Roof type Construction Slab:Slab - Suspended Slab : 200mm: 200mm	Added	1 1 1 Quantity	Exha Exha Exha	uust Fans nust Fans nust Fans	250 250 150 Diameter	Sealed Sealed Sealed (mm)

6

7.3 Star Rating as of 11 Jul 2023

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.

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7.3 Star Rating as of 11 Jul 2023

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Nationwide House Energy Rating Scheme NatHERS Certificate

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address 5, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128 Lot/DP NCC Class* Class 2 Type New Home

Plans

Main plan Prepared by

Construction and environment

Assessed floor area (m²)* Conditioned* 46.3 Unconditioned* 6.4 Total 52.7 Garage

Exposure type exposed NatHERS climate zone 62 Moorabbin Airport



Accredited assessor

Name **Business name** Email Phone Accreditation No. Assessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration of interest

Declaration completed: no conflicts

82.3 MJ/m

the more energy efficient

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performance Heating Cooling 64.8 17.5 MJ/m² MJ/m²

About the rating

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

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Availat	ble				

Custom* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61

Window and glazed door Schedule

								window
Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	shading device*
Location	Window ID	window no.	(1111)	(mm)	window type	opening %	Onentation	device.
Bedroom 1	CAP-057-13 A	Opening 15	2700	2900	sliding	45.0	E	No
Kitchen/Living	CAP-057-13 A	Opening 16	2700	2050	sliding	45.0	S	No
Kitchen/Living	CAP-055-52 A	Opening 17	2700	3250	fixed	0.0	E	No

* Refer to glossary.

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Roof window type and performance value

Roof window ty	ue and performa	ance valu	e				
Default* roof windows							
					Substitu	tion toler	ance ranges
Window ID	Window description		Maximum U-value*	SHGC*	SHGC lowe	er limit S	HGC upper limit
No Data Available							
						0	
Custom* roof windows					Substitu	tion toler	ance ranges
			Maximum	· ·			
Window ID	Window description		U-value*	SHGC*	SHGC lowe	er limit S	HGC upper limit
No Data Available							
Roof window sc	chedule						
Location	Window ID	Window no.	Opening	Area % (m²)		Outdoor shade	Indoor shade
No Data Available	WIND	window no.	Opening	/0 (111)	Onentation	Shaue	Shaue
Skylight type an	d performance						
Skylight ID	a periornanee		Skylight de	scription			
No Data Available							
Skylight schedu	le						
		Skylight	Skylight shaft	and the second se			Skylight shaft
Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area Orie (m²) atio		Diffuser	Skylight shaft reflectance
		ARGEN 6750. 6750		and the second se		Diffuser	and the second se
Location No Data Available	Skylight ID	ARGEN 6750. 6750		and the second se		Diffuser	and the second se
Location No Data Available External door so	Skylight ID	No.	length (mm)	and the second se	n shade		reflectance
Location No Data Available External door so Location	Skylight ID	No.		and the second se		Diffuser Orienta	reflectance
Location No Data Available External door so	Skylight ID	No.	length (mm)	and the second se	n shade		reflectance
Location No Data Available External door so Location No Data Available	Skylight ID Chedule Height	No.	length (mm)	and the second se	n shade		reflectance
Location No Data Available External door so Location	Skylight ID Chedule Height	No.	length (mm) Width (mm)	(m²) atio	n shade Opening %		reflectance
Location No Data Available External door so Location No Data Available	Skylight ID Chedule Height	No.	length (mm) Width (mm)	(m²) atio	n shade Opening %	Orienta	reflectance ation Reflective
Location No Data Available External door so Location No Data Available External wall type	Skylight ID Chedule Height	No.	length (mm) Width (mm) Solar	(m²) atio	on shade Opening %	Orienta	reflectance
Location No Data Available External door so Location No Data Available External wall type Wall ID Wall type	Skylight ID Chedule Height	No.	length (mm) Width (mm) Solar absorptance	(m²) atio Wall shade (colour)	opening % Bulk insulation	Orienta n (R-value t: R1.5 (R'	reflectance ation Reflective e) wall wrap* 1.5) No
Location No Data Available External door so Location No Data Available External wall type Wall ID Wall type 1 INTN	Skylight ID Chedule Height	No.	length (mm) Width (mm) Solar absorptance 0.5	(m²) atio Wall shade (colour) Medium	opening % Bulk insulation Glass fibre bat	Orienta n (R-value t: R1.5 (R ² R2.5 (R2	Reflective wall wrap* 1.5) No .5) No
Location No Data Available External door so Location No Data Available External wall type Wall ID Wall type 1 INTN 2 FC	Skylight ID Chedule Height	No.	length (mm) Width (mm) Solar absorptance 0.5 0.5	(m²) atio Wall shade (colour) Medium Medium	opening % Opening % Bulk insulation Glass fibre bat Rockwool batt:	Orienta n (R-value t: R1.5 (R ² R2.5 (R2	Reflective wall wrap* 1.5) No .5) No
Location No Data Available External door so Location No Data Available External wall type Wall ID Wall type 1 INTN 2 FC	Skylight ID chedule Height	No.	length (mm) Width (mm) Solar absorptance 0.5 0.5	(m²) atio Wall shade (colour) Medium Medium	opening % Opening % Bulk insulation Glass fibre bat Rockwool batt:	Orienta n (R-value t: R1.5 (R ² R2.5 (R2	Reflective wall wrap* 1.5) No .5) No
Location No Data Available External door so Location No Data Available External wall type 1 INTN 2 FC 3 EXCON	Skylight ID chedule Height	No.	length (mm) Width (mm) Solar absorptance 0.5 0.5 0.5	(m²) atio Wall shade (colour) Medium Medium	opening % Opening % Bulk insulation Glass fibre bat Rockwool batt: Rockwool batt:	Orienta n (R-value t: R1.5 (R ² R2.5 (R2 R2.5 (R2 hading	reflectance ation Reflective wall wrap* 1.5) No .5) No .5) No Vertical
Location No Data Available External door so Location No Data Available External wall type 1 INTN 2 FC 3 EXCON External wall so	Skylight ID chedule Height	No. (mm)	length (mm) Width (mm) Solar absorptance 0.5 0.5 0.5 0.5	(m²) atio	opening % Bulk insulation Glass fibre bat Rockwool batt: Rockwool batt: Horizontal s feature* ma	Orienta n (R-value t: R1.5 (R ² R2.5 (R2 R2.5 (R2 hading ximum	reflectance ation Reflective wall wrap* 1.5) No .5) No .5) No .5) No Vertical shading feature
Location No Data Available External door so Location No Data Available External wall type 1 INTN 2 FC 3 EXCON External wall so Location	Skylight ID chedule Height	No. (mm) Wall	length (mm) Width (mm) Solar absorptance 0.5 0.5 0.5	(m²) atio	opening % Opening % Bulk insulation Glass fibre bat Rockwool batt: Rockwool batt: Horizontal s feature* ma projection	Orienta n (R-value t: R1.5 (R ² R2.5 (R2 R2.5 (R2 hading ximum (mm)	reflectance Reflective wall wrap* 1.5) No .5) No
Location No Data Available External door so Location No Data Available External wall type 1 INTN 2 FC 3 EXCON External wall so Location Bedroom 1	Skylight ID chedule Height	No. (mm) Wall ID 1	Iength (mm) Width (mm) Solar absorptance 0.5 0.5 0.5 0.5 200 Width (mm)	(m²) atio	opening % Opening % Bulk insulation Glass fibre bat Rockwool batt: Rockwool batt: Horizontal s feature* ma n projection 0	Orienta n (R-value t: R1.5 (R ² R2.5 (R2 R2.5 (R2 hading ximum (mm)	reflectance Ation Reflective wall wrap* 1.5) No .5) No Vertical shading feature (yes/no) No
Location No Data Available External door so Location No Data Available External wall type 1 INTN 2 FC 3 EXCON External wall so Location	Skylight ID chedule Height	No. (mm) Wall	Iength (mm) Width (mm) Solar absorptance 0.5 0.5 0.5 0.5 200 Width (mm)	(m²) atio	opening % Opening % Bulk insulation Glass fibre bat Rockwool batt: Rockwool batt: Horizontal s feature* ma projection	Orienta n (R-value t: R1.5 (R ² R2.5 (R2 R2.5 (R2 hading ximum (mm)	reflectance Reflective wall wrap* 1.5) No .5) No

* Refer to glossary.

Bath

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 5, 5-9 Wellington Road & 7 Plar Street,

1

2700

2185 W

No

0

NatHERS Certificate	7.3 Star	Rating a	s of 11 J	ul 2023		
Kitchen/Living	2	2700	2710	S	3101	Yes
Kitchen/Living	3	2700	3893	E	196	No
Kitchen/Living	3	2700	5499	N	0	Yes
Kitchen/Living	1	2700	2526	N	0	No
Kitchen/Living	1	2700	2374	W	0	No
Kitchen/Living	1	2700	1319	N	0	No
Kitchen/Living	1	2700	2328	w	0	No
Internal wall <i>type</i> Wall ID Wall type		٨.	og (m²) I	Bulk insulati		
1 FR5 - Internal Plasterboard Stud Wa			27.3		on	
			21.0			
Floor type		-				
			Area	Sub-floor	Added insulation	on
Location Construction			(m²)	ventilation	(R-value)	Covering
Bedroom 1 CONPB		_	12.1	Enclosed	R0.0	Carpet
Bath CONPB			6.4	Enclosed	R0.0	Tiles
Kitchen/Living CONPB			34.2	Enclosed	R0.0	Timber
Ceiling type						
Location Construction material/typ	be 🔹				lation R-value (may edge batt values)	Reflective wrap*
No Data Available						
		6		7		
Ceiling penetrations*		Quantity	у Туре	1	Diameter (mm) Se	ealed/unsealed
Ceiling penetrations*		Quantity 1		ust Fans	· · ·	ealed/unsealed
Ceiling penetrations*		-	Exha		250 S	
Ceiling penetrations* Location Bath		1	Exha Exha	ust Fans	250 S 250 S	Sealed
Ceiling penetrations* Location Bath Kitchen/Living		1	Exha Exha	ust Fans ust Fans	250 S 250 S	Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living		1	Exha Exha Exha	ust Fans ust Fans	250 S 250 S	Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans		1	Exha Exha Exha	ust Fans ust Fans	250 S 250 S 150 S	Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans Location	Added in	1	Exha Exha Exha	ust Fans ust Fans ust Fans	250 S 250 S 150 S Diameter (Sealed Sealed Sealed
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans Location No Data Available Roof type Construction	Added in	1 1 1 Quantity	Exha Exha Exha	ust Fans ust Fans ust Fans	250 S 250 S 150 S Diameter (iealed iealed iealed mm) shade
Ceiling penetrations* Location Bath Kitchen/Living Kitchen/Living Ceiling fans Location No Data Available Roof type Construction	Added in	1 1 Quantity	Exha Exha Exha	ust Fans ust Fans ust Fans	250 S 250 S 150 S Diameter (iealed iealed iealed mm) shade
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6

7.3 Star Rating as of 11 Jul 2023

Explanatory Notes

About this report

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

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

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

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Nationwide House Energy Rating Scheme NatHERS Certificate

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

 Address
 6, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128

 Lot/DP

 NCC Class*
 Class 2

 Type
 New Home

Plans

Main plan Prepared by

Construction and environment

Assessed floor area (m²)* Conditioned* 63 Unconditioned* 3.9 Total 66.9 Garage

63 3.9 66.9 Exposure type exposed NatHERS climate zone 62 Moorabbin Airport

Ac

Accredited assessor

NameMargBusiness nameArk REmailmt@aPhone03 96Accreditation No.DMNAssessor Accrediting Organisation

Declaration of interest

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration completed: no conflicts

92.4 MJ/m²

the more energy efficient

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performanceHeatingCooling79.113.3MJ/m²MJ/m²

About the rating

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

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

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

Custom* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
CAP-051-06 A	Capral 35 Awning in 400 Frame DG 6EA/12Ar/6	4.42	0.41	0.39	0.43
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5

Window and glazed door Schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	CAP-051-06 A	Opening 24	2700	2000	awning	10.0	s	No
Bedroom 2	CAP-051-06 A	Opening 25	2700	2000	awning	10.0	S	No

* Refer to glossary.

			0 04 D		1. 1			
NatHERS Certifica	te	6.	9 Star R	ating as of 1	11 Jul 2023			
Bedroom 2	CAP-055-52 A	Opening 26	270	00 2350	fixed	0.0	E	No
Kitchen/Living	CAP-057-13 A	Opening 23	270	00 3840	sliding	45.0	E	No
-								
Roof window	type and pe	formance	value					
	if pe and pe	ionnanoo	rarao					
Default* roof window	s							
				Maximun		Substit	tution tolera	ance ranges
Window ID	Window des	cription		U-value*		SHGC lov	ver limit Sł	HGC upper limit
No Data Available								
Custom* roof windov	vs					Durhasti		
				Maximun		Substr	ution tolera	ance ranges
Window ID	Window des	cription		U-value*		SHGC low	ver limit SH	HGC upper limit
No Data Available								
Roof window	schedule							
					Area		Outdoor	Indoor
Location	Window ID	Wind	ow no.	Openi	ng % (m²)	Orientation	shade	shade
No Data Available								
Skylight type	and perform	ance						
Skylight ID				Skylight	description			
No Data Available								
Skylight sche	dule		8					
		Sky	light	Skylight sha	aft Area Orie	ent- Outdoor		Ola dialet also ft
	and a second sec							Skylight shaft
Location	Skylight ID	No.	5	length (mm	n) (m²) atio		Diffuser	reflectance
Location No Data Available	Skylight ID	No.		length (mm	n) (m²) atio			
No Data Available		No.		length (mn	n) (m²) atio			
		1				n shade	Diffuser	reflectance
No Data Available External door Location		No. Height (mm)		length (mn Width (mn				reflectance
No Data Available External door		1				n shade	Diffuser	reflectance
No Data Available External door Location No Data Available	schedule	1				n shade	Diffuser	reflectance
No Data Available External door Location	schedule	1		Width (mr	<u>n)</u>	n shade Opening %	Diffuser	tion
No Data Available External door Location No Data Available External wall	schedule	1		Width (mr Solar	n) Wall shade	n shade Opening %	Diffuser	tion
No Data Available External door Location No Data Available External wall Wall ID Wall type	schedule	1		Width (mr Solar absorptan	n) Wall shade ce (colour)	n shade Opening % Bulk insulati	Diffuser Orientat	reflectance
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN	schedule	1		Width (mr Solar absorptan 0.5	n) Wall shade ce (colour) Medium	n shade Opening % Bulk insulati Glass fibre ba	Diffuser Orientat	tion Reflective wall wrap* .5) No
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN 2 EXCON	schedule	1		Width (mr Solar absorptan 0.5 0.5	n) Wall shade ce (colour) Medium Medium	n shade Opening % Bulk insulati Glass fibre ba Rockwool bat	Diffuser Orientat	tion Reflective wall wrap* .5) No 5) No
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN	schedule	1		Width (mr Solar absorptan 0.5	n) Wall shade ce (colour) Medium	n shade Opening % Bulk insulati Glass fibre ba	Diffuser Orientat	tion Reflective wall wrap* .5) No 5) No
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN 2 EXCON 3 FC	type	1		Width (mr Solar absorptan 0.5 0.5	n) Wall shade ce (colour) Medium Medium	n shade Opening % Bulk insulati Glass fibre ba Rockwool bat	Diffuser Orientat	tion Reflective wall wrap* .5) No 5) No
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN 2 EXCON	type	1		Width (mr Solar absorptan 0.5 0.5	n) Wall shade ce (colour) Medium Medium	n shade Opening % Bulk insulati Glass fibre ba Rockwool ba Rockwool ba	Diffuser Oriental on (R-value) att: R1.5 (R1 tt: R2.5 (R2.) tt: R2.5 (R2.)	reflectance
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN 2 EXCON 3 FC	type	1		Width (mr solar absorptan 0.5 0.5 0.5	n) Wall shade ce (colour) Medium Medium Medium	n shade Opening % Bulk insulati Glass fibre ba Rockwool bat Rockwool bat	Diffuser Oriental on (R-value att: R1.5 (R1 t: R2.5 (R2.) t: R2.5 (R2.) shading	reflectance tion Reflective wall wrap* .5) No 5) No 5) No 7/ertical
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN 2 EXCON 3 FC External wall	type	1	Wall H	Width (mr Solar absorptan 0.5 0.5 0.5 Height Wid	n) Wall shade ce (colour) Medium Medium Medium	n shade Opening % Bulk insulation Glass fibre backwool ba	Diffuser Orientat on (R-value att: R1.5 (R1 t: R2.5 (R2.) t: R2.5 (R2.) shading shading shadin	reflectance tion Reflective wall wrap* .5) No 5) No 5) No 5) No
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN 2 EXCON 3 FC External wall Location	type	1	Wall H	Width (mr Solar absorptan 0.5 0.5 0.5 Height Wid (mm) (mr	n) Wall shade ce (colour) Medium Medium Medium	n shade Opening % Bulk insulati Glass fibre ba Rockwool bat Rockwool bat Rockwool bat Rockwool bat no projection	Diffuser Oriental on (R-value) att: R1.5 (R1 t: R2.5 (R2.) t: R2.5 (R2.) shading aximum sin (mm) (reflectance tion Reflective wall wrap* .5) No 5) No 5) No 5) No 5) No
No Data Available External door Location No Data Available External wall Wall ID Wall type 1 INTN 2 EXCON 3 FC External wall	type	1	Wall H ID 1	Width (mr Solar absorptan 0.5 0.5 0.5 Height Wid (mm) (mr 2700 297	n) Wall shade ce (colour) Medium Medium Medium	n shade Opening % Bulk insulation Glass fibre backwool ba	Diffuser Orientat on (R-value att: R1.5 (R1 tt: R2.5 (R2.) tt: R2.5 (R2.) shading aximum sn (mm) (reflectance tion Reflective wall wrap* .5) No 5) No 5) No 5) No

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* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 6, 5-9 Wellington Road & 7 Plar Street,

Page 3 of 7

NatHERS Certificate	6.9 Sta	ar Rating	as of 11	Jul 2023		
Bedroom 2	2	2700	3146	S	200	No
Bedroom 2	2	2700	3391	E	193	No
Bed 2 Ensuite	2	2700	1559	S	199	No
Bed 2 WIR	2	2700	1474	E	197	No
Bed 2 WIR	2	2700	2074	N	3822	Yes
Bath	1	2700	125	N	0	No
Bath	1	2700	1579	W	0	No
Kitchen/Living	1	2700	1809	w	0	No
Kitchen/Living	1	2700	919	s	0	No
Kitchen/Living	1	2700	2437	W	0	No
Kitchen/Living	3	2700	4060	E	2547	Yes
Kitchen/Living	2	2700	280	N	2976	Yes
Kitchen/Living		2700	6848	Ν	0	No

Internal wall type

Wall ID	Wall type	Area (m ²) Bulk insulation	
1	FR5 - Internal Plasterboard Stud Wall	52.8	

Floor type

Location	Construction		Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	10.7	Enclosed	R0.0	Carpet
Bedroom 2	CONPB	10.7	Enclosed	R0.0	Carpet
Bed 2 Ensuite 🧹	CONPB	4.1	Enclosed	R0.0	Tiles
Bed 2 WIR	СОЛРВ	3.1	Enclosed	R0.0	Carpet
Bath	CONPB	3.9	Enclosed	R0.0	Tiles
Kitchen/Living	CONPB	34.5	Enclosed	R0.0	Timber

Ceiling type

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

Ceiling penetrations*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Bed 2 Ensuite	1	Exhaust Fans	250	Sealed
Bath	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed
Ceiling fans				
Location	Quantity		Diamete	er (mm)
No Data Available				

* Refer to glossary.

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 6, 5-9 Wellington Road & 7 Plar Street,

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6.9 Star Rating as of 11 Jul 2023

Roof type

6

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab	0.0	0.5	Medium
7 1			
		\frown	
* Refer to glossary.		7	Page 5 of 7

6.9 Star Rating as of 11 Jul 2023

Explanatory Notes

About this report

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

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

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

Accredited assessors

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

Australian Capital Territory (ACT) licensed assessors may only produce assessments for regulatory purposes using software for which they have a licence endorsement. Licence endorsements can be confirmed on the ACT licensing register AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country. Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

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

Disclaimer

The format of the NatHERS Certificate was developed by the NatHERSAdministrator. 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.

* Refer to glossary.

6.9 Star Rating as of 11 Jul 2023

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

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address Lot/DP NCC Class* Type

7, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128

Class 2

New Home

Plans

Main plan Prepared by

Construction and environment

Assessed floor area (m²)* Conditioned* 39.2 Unconditioned* 4.4 Total 43.6 Garage

Exposure type exposed NatHERS climate zone 62 Moorabbin Airport

Accredited assessor

Name **Business name** Email Phone Accreditation No. **Assessor Accrediting Organisation**

Declaration of interest

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration completed: no conflicts

97.9 MJ/m

the more energy efficient

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performance Heating Cooling 20.9 77 MJ/m² MJ/m²

About the rating

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Certificate Check

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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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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".

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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

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

Custom* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5	
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61	

Window and glazed door Schedule

								window
			Height	Width				shading
Location	Window ID	Window no.	(mm)	(mm)	Window type	Opening %	Orientation	device*
Bedroom 1	CAP-057-13 A	Opening 30	2700	3400	sliding	30.0	S	No
Kitchen/Living	CAP-057-13 A	Opening 31	2700	1800	sliding	45.0	W	No
Kitchen/Living	CAP-055-52 A	Opening 32	2700	3604	fixed	0.0	S	No

* Refer to glossary.

6.8 Star Rating as of 11 Jul 2023

Roof window type and performance value

	Pene						
Default* roof windows							
			Mastinuum		Substit	tution toleran	ce ranges
Window ID	Window description		Maximum U-value*	SHGC*	SHGC lov	ver limit SHG	C upper limit
No Data Available							
Custom* roof windows					Pubeti	tution toleran	a ranges
			Maximum				
Window ID	Window description		U-value*	SHGC*	SHGC low	ver limit SHG	C upper limit
No Data Available							
Roof window so	chedule						
				Area		Outdoor	Indoor
Location	Window ID	Window no.	Opening %	% (m²)	Orientation	shade	shade
No Data Available							
Skylight type an	nd performance						
Skylight ID			Skylight des	cription			
No Data Available							
Skylight schedu	lle						
Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	(m²) atio			ylight shaft eflectance
No Data Available		110.	iengen (initi)	un due	in onduc	Dinasci	
					21		
External door so	chedule						
Location	Height	(mm)	Width (mm)		Opening %	Orientatio	n
No Data Available		,			-p		
External wall ty	pe					Y	
External Mail ()/			Solar V	Vall shad			Reflective
Wall ID Wall type			absorptance (and the second se	Bulk insulati	on (R-value)	wall wrap*
1 INTN		7	0.5 1	Medium	Glass fibre ba	att: R1.5 (R1.5)	No
2 FC			0.5 1	Medium	Rockwool bat	tt: R2.5 (R2.5)	No
3 EXCON			0.5 1	Medium	Rockwool bat	tt: R2.5 (R2.5)	No
External wall so	hedule						
					Horizontal	shading Ve	tical
		Wall			feature* m	aximum sha	ading feature
Location		ID		Drientatio	n projectio	n (mm) (ye	s/no)
Bedroom 1		1	2700 2996	N	0	No	
Bedroom 1							
		2	2700 3977	s	234	1 Ye	s

* Refer to glossary.

Bath

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 7, 5-9 Wellington Road & 7 Plar Street,

1

2700

1777 W

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No

0

NatHERS Certificate	6.8 Star	Rating a	s of 11	Jul 2023		
Ldry	1	2700	1355	Ν	0	No
Kitchen/Living	2	2700	2001	W	4105	Yes
Kitchen/Living	3	2700	3604	S	199	No
Kitchen/Living	2	2700	6891	E	0	No
Kitchen/Living	1	2700	3601	N	0	No
nternal wall type						
Wall ID Wall type		Ar	ea (m²)	Bulk insulation		
1 FR5 - Internal Plasterboard Stud Wall			28.1			

Floor type

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	11.9	Enclosed	R0.0	Carpet
Bath	CONPB	4.4	Enclosed	R0.0	Tiles
Ldry	CONPB	2.4	Enclosed	R0.0	Timber
Kitchen/Living	CONPB	24.8	Enclosed	R0.0	Timber

Ceiling type

Location	Construction material/type	include edge batt values)	wrap*
No Data Availab	le		

Ceiling penetrations*

Coming performations				
Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Bath	1	Exhaust Fans	250	Sealed
Ldry	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed
Ceiling fans				
Location	Quantity		Diamet	er (mm)
No Data Available				
Roof type				
Construction	Added insulation (R-value) Sola	r absorptance R	oof shade
Slab:Slab - Suspended Slab : 200mm: 200mm	0.0		0.5 M	ledium
Suspended Slab	0.0		0.0	Iedium

* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 7, 5-9 Wellington Road & 7 Plar Street, Page 4 of 6

6.8 Star Rating as of 11 Jul 2023

Explanatory Notes

About this report

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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.
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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).
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6.8 Star Rating as of 11 Jul 2023

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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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

8, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address Lot/DP NCC Class* Type

-Class 2 New Home

Plans

Main plan Prepared by

Construction and environment

Assessed floor area (m²)* Conditioned* 61.1 Unconditioned* 3.9 Total 65 Garage Exposure type exposed NatHERS climate zone 62 Moorabbin Airport

V SESSOT

Accredited assessor

NameMargaBusiness nameArk REmailmt@aPhone03 96Accreditation No.DMN/Assessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration of interest

Declaration completed: no conflicts

6.9 The more stars the more energy efficient

95.3 MJ/m²

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performanceHeatingCooling79.615.7MJ/m²MJ/m²

About the rating

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

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.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

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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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

			Substitution to	plerance ranges
Window ID	Window description	Maximum U-value* SHGC*	SHGC lower limit	SHGC upper limit
No Data Availa	able			

Custom* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61
CAP-051-06 A	Capral 35 Awning in 400 Frame DG 6EA/12Ar/6	4.42	0.41	0.39	0.43
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5

Window and glazed door Schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	CAP-055-52 A	Opening 41	2700	2350	fixed	0.0	W	No
Bedroom 1	CAP-051-06 A	Opening 39	2700	2000	awning	10.0	s	No

* Refer to glossary

					A.				
NatHERS Certifica	to	6.0) Star F	Pating as	of 11	Jul 2023			
Bedroom 2	CAP-051-06 A	Opening 38	27	00 20	00	awning	10.0	S	No
Kitchen/Living	CAP-057-13 A	Opening 40	27	00 38	50	sliding	45.0	W	No
Roof window	type and pe	rformance	value	9					
Default* roof window	\sim							-	
Deladic Tool window	•						Subs	titution tole	erance ranges
				Maxir	num			13	SHGC upper limit
Window ID	Window des	cription		U-va	ue*	SHGC*	SHOCK		SHOC upper min
No Data Available									
Custom* roof window	vs								
							Subs	titution tole	erance ranges
				Maxir			SHGC	ower limit	SHGC upper limit
Window ID	Window des	cription		U-va	ue*	SHGC*			
No Data Available									
D								and the second	
Roof window	schedule								
Location	Window ID	Windo	W DO	00	enin	Area g% (m²)	Orientation	Outdoo shade	r Indoor shade
No Data Available	Windowid	Windo	witto.	Op	cimi	y ⁄₀ (m)	Unentation	Sildue	Shaue
The Data Available									
Skylight type	and parform	2000							
Skylight ID	and perion	lance		Skuli	abt d	escription			
No Data Available		0		OKyn	grit u	coenption			
					/				
Skylight sche	dule								
okyngni oono	duite	Skyl	iaht	Skylight	shaf	t Area Orier	nt- Outdoo	or 🛡	Skylight shaft
Location	Skylight ID		5	length (A CONTRACTOR OF		Diffuser	
No Data Available									
					-				
External door	schedule								
Location		Height (mm)		Width	(mm)) (Opening %	Orien	tation
No Data Available									
External wall	type								
				Sol	ar	Wall shade			Reflective
Wall ID Wall type				absorp	tanc	e (colour)	Bulk insula		
1 EXCON				0.9	5	Medium	Rockwool b	att: R2.5 (R	2.5) No
2 INTN				0.	5	Medium	Glass fibre	batt: R1.5 (I	R1.5) No
3 FC				0.	5	Medium	Rockwool b	att: R2.5 (R	2.5) No
External wall	schedule								
								al shading	Vertical
Location			Surger and	Height				naximum	shading feature
Location			ID	A STORAGE AND A		Orientation W		on (mm)	(yes/no) No
Bedroom 1		-	1		1000		1207	00	
Bedroom 1			1	2700	3133		1	99	No
					-				

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* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 8, 5-9 Wellington Road & 7 Plar Street,

Page 3 of 7

NatHERS Certificate	6.9 Star	r Rating a	is of 11	Jul 2023		
Bed 1 WIR	1	2700	1472	W	199	No
Bed 1 WIR	1	2700	1949	N	3878	Yes
Bed 1 Ensuite	1	2700	1597	S	244	No
Bedroom 2	1	2700	3571	S	200	No
Bedroom 2	1	2700	1797	E	3965	Yes
Bedroom 2	2	2700	1182	E	0	No
Bath	2	2700	1575	E	0	No
Kitchen/Living	3	2700	4066	W	2766	Yes
Kitchen/Living	1	2700	369	N	3878	Yes
Kitchen/Living	2	2700	4254	E	0	No
Kitchen/Living	2	2700	6113	N	0	No

Internal wall type

Wall ID	Wall type		Area (m²) Bul	lk insulation	
1	FR5 - Internal Plaste	erboard Stud Wall	53.5		

Floor type

		Area	Sub-floor	Added insulation	
Location	Construction	(m²)	ventilation	(R-value)	Covering
Bedroom 1	CONPB	11.1	Enclosed	R0.0	Carpet
Bed 1 WIR	CONPB	2.6	Enclosed	R0.0	Carpet
Bed 1 Ensuite	CONPB	4.5	Enclosed	R0.0	Tiles
Bedroom 2	CONPB	10.6	Enclosed	R0.0	Carpet
Bath	CONPB	3.9	Enclosed	R0.0	Tiles
Kitchen/Living	СОЛРВ	32.3	Enclosed	R0.0	Timber

Ceiling type

		Duik insulation R-value (inay	Reliective	
Location	Construction material/type	include edge batt values)	wrap*	
No Data Available				

Ceiling penetrations*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Bed 1 Ensuite	1	Exhaust Fans	250	Sealed
Bath	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed
Kitchen/Living	1	Exhaust Fans	250	Sealed
Ceiling fans				
Location	Quantity		Diamet	er (mm)
No Data Available		-		
Roof type				
Construction	Added insulation (F	R-value) Sola	ar absorptance Ro	oof shade
* Refer to glossary.	E			Page 4 of 7

NatHERS Certificate	6.9 Star Rating as of 11 Jul 2023			
Slab:Slab - Suspended Slab : 200mm: 20 Suspended Slab	0mm 0.0	0.5	Medium	
		7		
		V		
* Refer to glossary.			Page 5 of 1	7

Å

6.9 Star Rating as of 11 Jul 2023

Explanatory Notes

About this report

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Nationwide House Energy Rating Scheme NatHERS Certificate

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

Address 9, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128 Lot/DP NCC Class* Class 2 Type New Home

Plans

Main plan Prepared by

Construction and environment

Assessed floor area (m²)* Conditioned* 48.6 Unconditioned* 5.5 Total 54.1 Garage



Accredited assessor

Name **Business name** Email Phone Accreditation No. Assessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Exposure type

NatHERS climate zone

62 Moorabbin Airport

exposed

Declaration of interest

Declaration completed: no conflicts

the more energy efficient

75.8 MJ/m

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performance Heating Cooling 61.4 14.4 MJ/m² MJ/m²

About the rating

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Verification

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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

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
WIND	willdow description	0-value	Shec			
No Data Availat	ble					

Custom* windows

				Substitution to	lerance ranges
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5

Window and glazed door Schedule

			Height	Width				shading
Location	Window ID	Window no.	(mm)	(mm)	Window type	Opening %	Orientation	device*
Bedroom 1	CAP-055-52 A	Opening 47	2700	2350	fixed	0.0	W	No
Bedroom 1	CAP-057-13 A	Opening 46	2700	2200	sliding	45.0	s	No
Kitchen/Living	CAP-057-13 A	Opening 45	2700	3278	sliding	30.0	W	No

* Refer to glossary.

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7.4 Star Rating as of 11 Jul 2023

Roof window type and performance value

Roof window ty	pe and perform	ance valu	e				
Default* roof windows							
					Substit	ution tolerance	e ranges
Window ID	Window description		Maximum U-value*	SHGC*	SHGC low	er limit SHGC	upper limit
No Data Available	innuon uooonphon		• Value				
Custom* roof windows					Substit	ution tolerance	e ranges
			Maximum		SHGC low		upper limit
Window ID	Window description		U-value*	SHGC*	SHGC IOW		
No Data Available							
Roof window so	chedule						
Location	Window ID	Window no.	Opening	Area J% (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available				ņ			
Skylight type an skylight ID	nd performance		Skylight de	escription			
No Data Available							
Skylight schedu	ile						
		Skylight	Skylight shaft	and the second sec			light shaft
Location No Data Available	Skylight ID	No.	length (mm)	(m²) ation	n shade	Diffuser re	flectance
External door so	chedule						
Location	Height	(mm)	Width (mm)		Opening %	Orientation	
No Data Available					-2		
External wall type	ve						
Well ID. Well fime			Solar	Wall shade		(D volue)	Reflective
Wall ID Wall type			absorptance 0.5	Medium	Bulk insulation		wall wrap* No
2 FC			0.5	Medium	Rockwool bat		No
3 INTN			0.5	Medium		tt: R1.5 (R1.5)	No
					Glass fibre ba		10-8-000
4 CONS			0.5	Medium	density = 12 k		No
External wall so	hedule						
V. Andrewski and a state of the					Horizontal		ical
Location		1000	Height Width		feature* ma	aximum shad	ling feature
Location Bedroom 1		Wall ID 1	(mm) (mm)	Orientation	feature* ma projection	aximum shaq n (mm) (yes	ding feature /no)
Bedroom 1		1000	(mm) (mm) 2700 2997	Orientation W	feature* ma	aximum shaq n (mm) (yes Yes	ding feature /no)
		ID 1	(mm) (mm)	Orientation W	feature* ma projection 197	aximum shaq n (mm) (yes Yes	ding feature /no)

* Refer to glossary.

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 9, 5-9 Wellington Road & 7 Plar Street,

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			A
NatHERS Certificate	7.4 Star Rating as of 11 Jul 20	23	
Bedroom 1	3 2700 1961 N	0	No
Bedroom 1	1 2700 2118 N	0	Yes
Bath	3 2700 2790 E	0	No
Bath	3 2700 1967 N	0	No
Study	3 2700 2926 N	0	No
Kitchen/Living	2 2700 3368 W	2759	Yes
Kitchen/Living	3 2700 8004 S	O	No
Kitchen/Living	3 2700 924 E	O	No
Kitchen/Living	4 2700 2641 E	0	No
Kitchen/Living	3 2700 1216 N	0	No
Internal wall type			
Wall ID Wall type 1 FR5 - Internal Plasterboard Stud Wall	Area (m²) Bulk	Insulation	
PRS- Internal Plasterboard Stud Wall	52.9		
Floor type			
r loor type	Area Sub	-floor Added insul	ation
Location Construction	(m²) vent	ilation (R-value	e) Covering
Bedroom 1 CONPB	12.2 Enc	losed R0.0	Carpet
Bath CONPB	5.5 Enc	losed R0.0	Tiles
Study CONPB	5.1 Enc	losed R0.0	Timber
Kitchen/Living CONPB	31.3 Enc	losed R0.0	Timber
Ceiling type			
Location Construction material/type		ulk insulation R-value (ma include edge batt values)	
No Data Available			
Ceiling penetrations*			
Location	Quantity Type	Diameter (mm)	Sealed/unsealed
Bath	1 Exhaust F		Sealed
Study	1 Exhaust F		Sealed
Kitchen/Living	1 Exhaust F	ans 150	Sealed
O III a fact			
Ceiling fans	0		
Location No Data Available	Quantity	Diamet	er (mm)
Roof type			
Construction	Added insulation (R-value)	Solar absorptance Ro	oof shade
Slab:Slab - Suspended Slab : 200mm: 200mm	0.0		edium
Suspended Slab	0.0	0.5 M	ealum
			Page 4 of 6

6

* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 9, 5-9 Wellington Road & 7 Plar Street,

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7.4 Star Rating as of 11 Jul 2023

Explanatory Notes

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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.

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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).
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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.

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NatHERS Certificate

7.4 Star Rating as of 11 Jul 2023

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).

* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 9, 5-9 Wellington Road & 7 Plar Street, Page 6 of 6

Nationwide House Energy Rating Scheme NatHERS Certificate

Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

Property

10, 5-9 Wellington Road & 7 Plar Street, Box Hill, VIC, 3128 Address Lot/DP NCC Class* Type New Home

Class 2

Plans

Main plan Prepared by

Construction and environment

Assessed floor area (m²)* Conditioned* 74 Unconditioned* 3 Total 77 Garage

Exposure type exposed NatHERS climate zone 62 Moorabbin Airport

Accredited assessor

Name **Business name** Email Phone Accreditation No. Assessor Accrediting Organisation

Margaret Turner Ark Resources mt@arkresources.com.au 03 9636 0280 DMN/11/0194

Declaration of interest

Declaration completed: no conflicts

78.6 MJ/m

the more energy efficient

Predicted annual energy load for heating and cooling based on standard occupancy assumptions.

For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performance Heating Cooling 12.3 66.3 MJ/m² MJ/m²

About the rating

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

Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.FR5.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. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 10, 5-9 Wellington Road & 7 Plar

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? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

				lerance ranges	
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit
No Data Availabl	e				

Custom* windows

				Substitution tolerance ranges		
Window ID	Window description	Maximum U-value*	SHGC*	SHGC lower limit	SHGC upper limit	
CAP-051-06 A	Capral 35 Awning in 400 Frame DG 6EA/12Ar/6	4.42	0.41	0.39	0.43	
CAP-055-52 A	Capral 419 Flushline Fixed Window DG 6/12Ar/6EA	2.71	0.58	0.55	0.61	
CAP-057-13 A	Capral 900 Sliding Door DG 6EA/12Ar/6	3.19	0.48	0.46	0.5	

Window and glazed door Schedule

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Bedroom 1	CAP-051-06 A	Opening 54	2700	1700	awning	10.0	W	No
Bedroom 2	CAP-055-52 A	Opening 57	2700	2350	fixed	0.0	w	No

* Refer to glossary.

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								A
NatHERS Certificate		7.4 5	Star Rating	g as of 11	Jul 2023			
Bedroom 2	CAP-057-13 A O	pening 55	2700	2050 s	sliding	45.0	N	No
Kitchen/Living (CAP-057-13 A O	pening 56	2700	3800 s	sliding	45.0	W	No
Roof window ty	pe and perfor	rmance va	alue					
Default* roof windows						Substi	itution tolera	
Window ID	Window descript	ion		laximum J-value*	SHGC*			IGC upper limit
No Data Available								
Custom* roof windows								
						Subst	itution tolera	nce ranges
Window ID	Window descript	ion		laximum J-value*	SHGC*	SHGC Iou	wer limit SH	IGC upper limit
No Data Available								
		Sec. Sec.						
Roof window s	chedule				2			
					Area		Outdoor	Indoor
Location	Window ID	Window	no.	Opening)% (m²)	Orientation	shade	shade
No Data Available								
Skylight type a	nd performan	ce						
Skylight ID No Data Available			5	skylight de	escription			
No Data Available								
Skylight sched	ule							
		Skylig	Contract Contraction		Area Orie			Skylight shaft
Location	Skylight ID	No.	len	gth (mm)	(m²) atio	n shade	Diffuser	reflectance
No Data Available								
External door s	schedule							
Location	Hei	ght (mm)	Wi	dth (mm)		Opening %	Orientat	ion
No Data Available								
External wall th	/pe							
				Solar	Wall shade			Reflective
Wall ID Wall type			abs	sorptance		Bulk insulati		
1 FC				0.5	Medium		tt: R2.5 (R2.5	
2 INTN				0.5	Medium		att: R1.5 (R1.	<u> </u>
3 CONS				0.5	Medium		att (k = 0.044 kg/m3) (R0.6	No
4 EXCON				0.5	Medium	Rockwool ba	tt: R2.5 (R2.5	5) No
External wall s	chedule							
						Horizontal	And a state of the	ertical
Location			Vall Heigl ID (mm		Orientation	feature* m n projectio		hading feature /es/no)
* Defende alerer				-	1	NI	×	D
* Refer to glossary.								Page 3 of 7
Generated on 11 Jul 2	2023 using FirstRate	5: 5.3.2b (3.2'	1) for U 10), 5-9 Well	lington Road	1& / Plar		

NatHERS Certificate	7.4 Star	r Rating a	s of 11	Jul 2023		
Bedroom 1	1	2700	1758	W	0	Yes
Bedroom 1	2	2700	4792	S	0	No
Bed 1 WIR	2	2700	1511	S	0	No
Bed 1 Ensuite	2	2700	1628	S	0	No
Bed 1 Ensuite	3	2700	2776	E	0	No
Bedroom 2	4	2700	2996	W	262	No
Bedroom 2	4	2700	2311	S	0	Yes
Bedroom 2	1	2700	2248	N	4018	Yes
Ldry	3	2700	1689	E	0	No
Kitchen/Living	2	2700	359	W	0	No
Kitchen/Living	2	2700	5961	N	0	No
Kitchen/Living	1	2700	3898	w	2640	Yes
Kitchen/Living	3	2700	2863	E	0	No
Kitchen/Living	3	2700	1680	Е	0	No
Kitchen/Living	2	2700	2143	Ν	0	No

Internal wall type

Wall ID Wall type		Area (m²) Bulk insulat	tion
1 FR5 - Internal Plasteri	ooard Stud Wall	65.9	
Floor type			
		Area Sub-floor	Added insulation
Location Construction	'n	(m²) ventilation	(R-value) Covering

Location	Construction	(III-) ventilation	(R-Value)	covering
Bedroom 1	СОЛРВ	13.2 Enclosed	R0.0	Carpet
Bed 1 WIR	СОЛРВ	3.6 Enclosed	R0.0	Carpet
Bed 1 Ensuite	СОЛРВ	4.5 Enclosed	R0.0	Tiles
Bath	СОЛРВ	4.1 Enclosed	R0.0	Tiles
Bedroom 2	СОЛРВ	10.8 Enclosed	R0.0	Carpet
Ldry	СОЛРВ	3 Enclosed	R0.0	Timber
Kitchen/Living	СОЛРВ	37.9 Enclosed	R0.0	Timber

Ceiling type

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

Ceiling penetrations*

Location	Quantity	Туре	Diameter (mm)	Sealed/unsealed
Bed 1 Ensuite	1	Exhaust Fans	250	Sealed
Bath	1	Exhaust Fans	250	Sealed
Ldry	1	Exhaust Fans	250	Sealed
Kitchen/Living	1	Exhaust Fans	150	Sealed

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NatHERS Certificate	7.4 Star Rating as of 11 Jul 2023	
Ceiling fans		
Location	Quantity	Diameter (mm)
No Data Available		
Roof type		
Construction	Added insulation (R-value) Sola	ar absorptance Roof shade
Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab	0.0	0.5 Medium
	2	
* Refer to glossary		Page 5 of 7

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Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 10, 5-9 Wellington Road & 7 Plar

NatHERS Certificate

7.4 Star Rating as of 11 Jul 2023

Explanatory Notes

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NatHERS Certificate

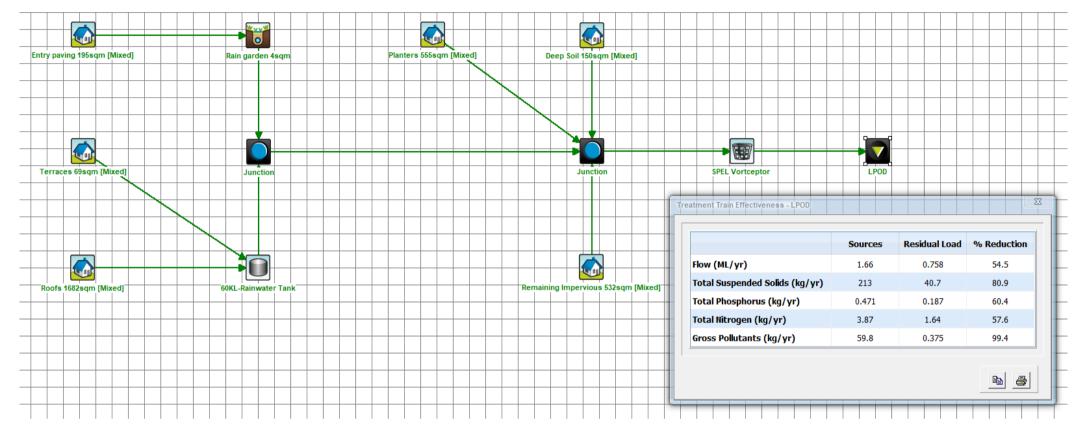
7.4 Star Rating as of 11 Jul 2023

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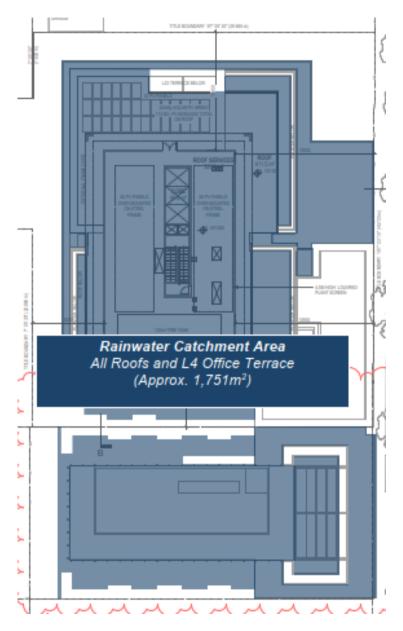
heritage trees).

* Refer to glossary. Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21) for U 10, 5-9 Wellington Road & 7 Plar Page 7 of 7

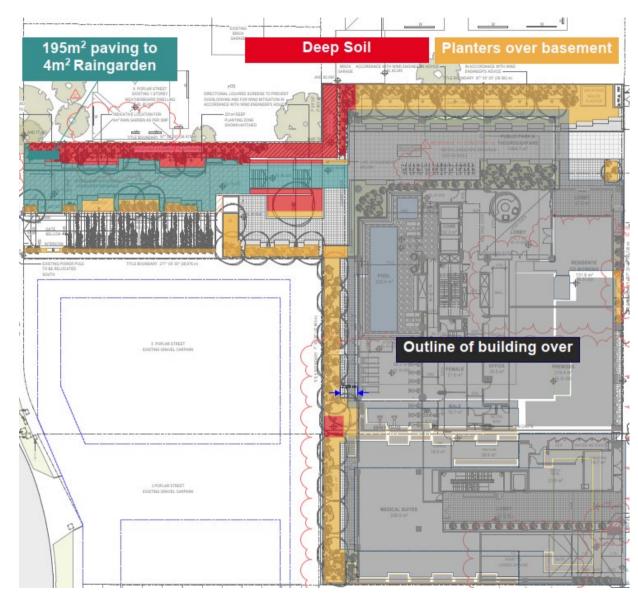
B.1 MUSIC Schematic



B.2 Rainwater Catchment Areas



B.3 Landscaped Areas



B.4 MUSIC Modelling Assumptions and Inputs

Area Name	Area [m ²]
Total Areas to Rainwater Tank	1,751
All roofs	1,682
Level 4 Office Terrace	69
Paving Areas to Rain gardens	195
Poplar Entry Paaving	195
Pervious Landscape Areas	705
Deep Landscaping	150
Planters & Landcaping over Basement	555
Remaining Area	533
Total Site Area	3,184

Treatment Devices Features	
RWT	60 kL
Est. daily water demand for TF	7.6 kL/day
Toilets supplied from RWT	All residential and commercial toilets
Est. annual demand for irrigation	273 kL/yr
*Total RG surface area	4 m ²
**Primary Treatment System1(GPT)	SPEL Vortceptor 22L/s (or equivalent)

NOTES:

* RGs vegetated with Effective Nutrient Removal Plants. Further specification to be undertaken in Detailed Design.

**Nutrient reduction (Phosphorous and Nitrogen) not attributed to GPT as per Melbourne Water MUSIC guidelines.

Acronyms

RWT: Rain Water Tank

RG: Rain Garden

TF: Toilet Flushing

<u>GPT:</u> Gross Pollutant Trap

Rainfall data	
Rainfall Range & Station Name	C - Melbourne City (650-750mm)
10 Year Period	B - 1971-1980
Mean annual rainfall	B - 575mm
Evapotranspiration	B - 1041
Time step	6 minutes
Estimation method	Stochastically generated

Soil properties - Melbourne	
Soil store capacity	120mm
Field capacity	50mm

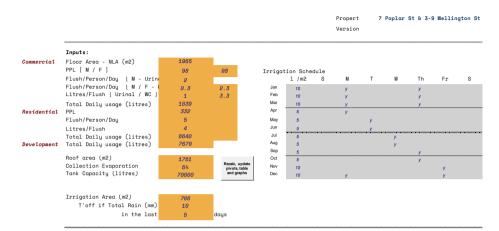
Rain Garden	
Filter Depth	500mm
Extended Detention Depth	200mm
Saturated Hydraulic Conductivity	100mm/hour
Underdrain present?	Yes

GPT Pollutant Removal Rates (SPEL Vortceptor)						
Total Suspended Solids	70%					
Total Nitrogen	0%					
Total Phosphorous	30%					
Gross Pollutants	98%					
Validation report	CRC for Catchment Hydrology					

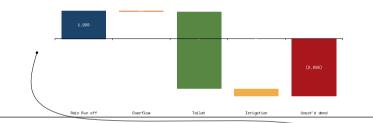
B.5 MUSIC Results

Pollutant	MUSIC Model Results	Green Star Targets (Column B)	Melbourne Water Targets
Reduction in Total Suspended Solids (TSS)	80.9%	80.0%	80.0%
Reduction in Total Phosphorus (TP)	60.4%	60.0%	45.0%
Reduction in Total Nitrogen (TN)	57.6%	45.0%	45.0%
Reduction in Total Gross Pollutants	99.4%	90.0%	70.0%
Compliance with targets		YES	YES

B.6 Rainwater Harvesting and Tank Reliability



System components (kls per year)



System components (kls per year) based on 12 years of actual historical daily rainfall 12 years of Averages (k I) Rain Run off 62 106 86 88 74 79 85 79 Overflow Rain Water saved 978 85 79 (217) (238) (230) (238) (230) (238) (238) (230) (238) (230) (2,803) Toilet (238) (237 (Shortfall)/Surplus (171) (155) (178) (132) (152) (145) (159) (149) (146) (162) (126) (150) (1,825) before Irrigation (10) (10) (10 (11) (10) (272.9) Unsatisfied Deman (155) (157 (171) Actual Years (k l) 2014 2012 1,047 2013 2017 Total 12,247 2011 2015 2016 2018 Rain Run off 833 1,298 1,288 1,128 789 811 1,122 1,038 930 695 1,268 (64) 974
 (68)
 (178)
 (35)

 1,230
 1,110
 1,047
 1,092
 789
 811

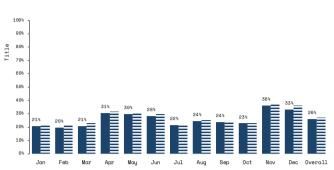
 (2,803)
 (2,803)
 (2,811)
 (2,803)
 (2,803)
 (2,803)
 (503) Overflow (50) 783 (2,803) (40) 891 1,122 Rain Water saved 695 (2,811) (2,803) (2,803) (2,803) Toilet (2 795) (33 644) (Shortfall)/Surplus (2,020) (1,573) (1,693) (1,764) (1,711) (2,014) (1,992) (1,689) (1,829) (1,912) (2,108) (1,595) (21,900) before Irrigation Irrigation Unsatisfied Demand (247) (254) (268) (265) (286) (275) (261) (265) (1,821) (1,947) (2,032) (1,975) (2,300) (2,267) (1,950) (2,094) (293) (2,205) (332) (2,440) (229) (3,276) (1,824) (25,176) (300) (2.320

Reliability of supply (daily demand met)- Tank size what ifs

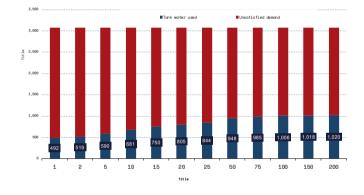
Tank	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Overall
TK.	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	20%
2k	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	26%
ык	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	26%
TUK	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	26%
2UK	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	20%
SUK	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	26%
TUUK	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	26%
200K	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	20%

Graph 2 - Reliability of supply from tank (average across 12 years)

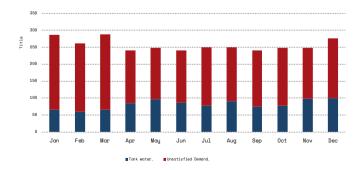




Graph 3 - Tank water used (per year) V Tank size Kis per year



Graph 4 - Tank water used vunsatisfied demand by month (kis permonth)



box 4

Appendix C. WSUD Maintenance Programs

 Rainwater Harvesting
 The scope of the maintenance program will include inspection and rectification of issues associated with:

 System
 – Roof gutters and downpipes

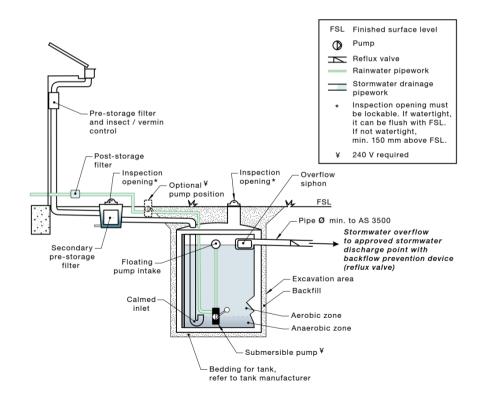
 – First flush screens and filtration devices

– Pumps

- Distribution pipework and reticulation systems
- Overflow systems

Inspections of the system and any maintenance works required will be undertaken on a quarterly basis or as per manufacturers guidelines.

The rainwater harvesting system will be installed in accordance with the guidelines set out in the Rainwater Design & Installation Handbook published by the National Water Commission². A schematic diagram of the rainwater tank installation is provided below.



Once installed, a systematic maintenance program will be implemented by the owner's corporation maintenance contractor to ensure the rainwater harvesting system operates as designed and water quality is maintained.

² Rainwater Design & Installation Handbook, National Water Commission, 2008

Rainwater Tank Element	Inspection Item	Y/N	Likely Maintenance Task
Roof gutters and downpipes	Is there leaf litter or debris in the gutters?		Remove by hand and dispose responsibly
First flush diverter	Is there anything blocking the first flush diverter (Leaves etc.)?		Remove by hand and dispose responsibly
Potable mains back up device	Is the potable mains back up switch operating correctly?		Repair or replace devise. Consider a manual switching device.
Mesh cover	Has the mesh cover deteriorated or have any holes in is?		Replace mesh cover.
Tank volume	Is there large amounts of sediment or debris sitting in the bottom of the tank, reducing the volume available in the tank to store water?		Remove sediment and dispose responsibly.
Pump	Is the pump working effectively? Have you heard it on a regular basis?		Check the potable mains back up is not permanently on. Repair or replace pump.
Pipes and taps	Are pipes and taps leaking?		Repair as needed.
Overflow	Is the overflow clear and connected to the storm water network?		Remove blockages and/or restore connections to stormwater network.

Maintenan	ice Fr	equenci	1									
	J	F	М	А	М	J	J	А	S	0	Ν	D
All tasks	Х			Х			Х			Х		

Rain Gardens

Design, construction and planting of raingardens shall be implemented in accordance with the relevant Instruction Sheet published by Melbourne Water and the Victorian state government:

Inground raingardens: - https://www.melbournewater.com.au/media/447/download

Infiltration raingardens - https://www.melbournewater.com.au/media/446/download

Further guidelines for raingarden planning, design, construction and maintenance guidelines have been developed by the Cooperative Research Centre for Water Sensitive Cities, with support from Melbourne Water:

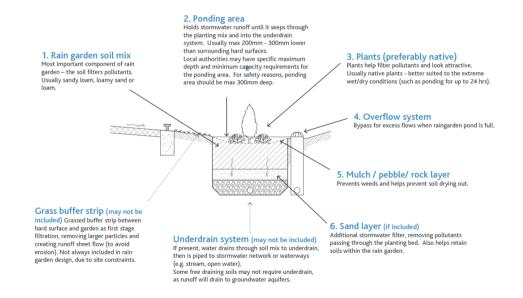
https://watersensitivecities.org.au/content/stormwater-biofilter-design/

The scope of the maintenance program will include inspection and rectification of issues associated with:

- Raingarden soil mix
- Ponding area
- Plants

- Overflow system
- Mulch/ pebble/ rock layer
- Underdrain system (where applicable)

A cross-sectional diagram of a typical raingarden is provided below.



Inspections of the raingarden system and any maintenance works required will be undertaken as outlined in the maintenance schedule below.

Once installed, a systematic maintenance program will be implemented by the owner's corporation maintenance contractor to ensure the raingarden operates as designed.

Component	Maintenance Action
AFTER STORM EVENTS	
Ponding Area	Check raingarden inlet for sediment, rubbish and leaves and remove as required.
	Check for erosion or scour and repair.
	Check and ensure that the garden is infiltrating effectively.
	Check and re-profile topsoil as necessary – ensure level is below surrounding hard surface and overflow.
Kerb, Paved Area, or Grass Filter Strip (if included)	Remove rubbish, leaves and other debris from surrounding areas
Mulch	Check and redistribute/add mulch as necessary – particularly at the raingarden inlets.
3 MONTHLY	
Ponding area	Check raingarden inlets for sediment build up, litter and leaves.
	Check for erosion or scour and repair if necessary.
Mulch Layer	Remove litter, leaves and other debris.
	Redistribute/add mulch if necessary.
Overflow system	Check for any blockages and remove as necessary.
Plants	Check plant health and replace dead plants as necessary.
	Remove weeds – do not use herbicides, pesticides and fertilisers as the chemicals may infiltrate through the rain garden and pollute the stormwater runoff.
ANNUALLY	
Mulch Layer	Check for sediment build up – remove and replace as required.
Ponding Area	Check all water has drained 24 hours after heavy rain – remove and replace the crust from the top of raingarden if drainage not effective.
	Check for litter, leaves and sediment build up and remove as necessary.
	Check for erosion and gouging and repair where necessary.
Raingarden Soil Mix	Check soil level is below surrounding hard surface level and the overflow
Underdrain System	lf underdrain present, flush underdrain and check for blockages – repair if necessary.

Gross Pollutant Trap (GPT)

Cleaning and maintenance will be carried out in accordance with the manufacturer's written guidelines. Maintenance requirements and frequencies are dependent on the pollutant load characteristics.

Screening area

Collection area

The scope of the maintenance program will include inspection and rectification of issues associated with:

- Manhole cover
- Inlet pipe
- Outlet

Inspections of the GPT and any maintenance works required will be undertaken as outlined as a guide in the maintenance schedule below. Manufacturer's guidelines will take precedence.

Maintenance Action

3-6 MONTHLY

- Check components for damage.
- Check that the inlet and outlet are free from debris or obstructions.
- Remove large floating pollutants.
- Measure sediment depth.

12-24 MONTHLY (or as guided by sediment depth)

- Removal of accumulated sediment and gross pollutants.
- Inspection of screen and cleaning if required.

Once installed, a systematic maintenance program will be implemented by the landowner to ensure the GPT operates as designed and water quality is maintained.

Appendix D. Solar Photovoltaics

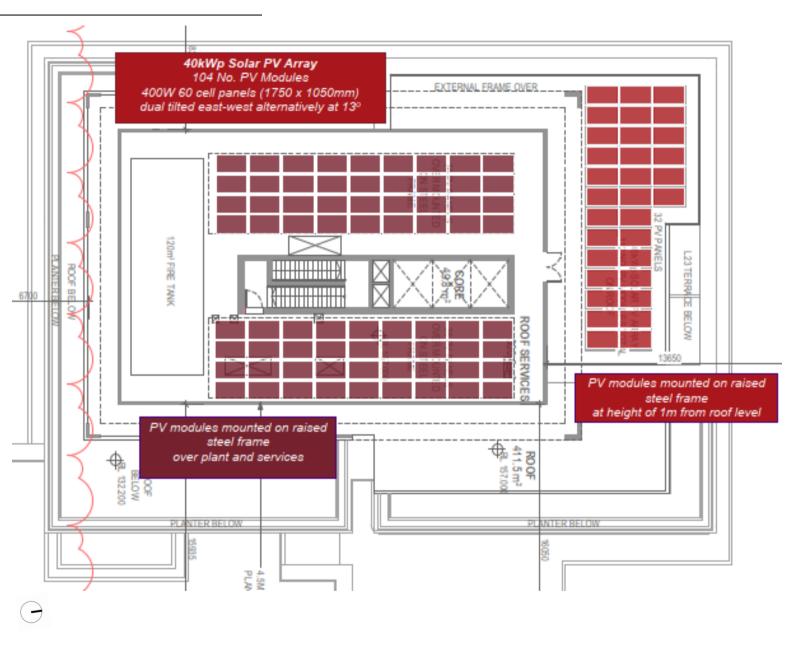
During the construction phase, highefficiency solar PV modules with a total capacity of 40 kWp will be installed at roof level as per the preliminary layout indicated below.

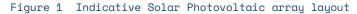
PV modules should be oriented in pairs to the east and west at 10-15° tilt and have at least 400Wp capacity (i.e. over 33% more efficient than traditional 300Wp 60cell modules). High-efficiency modules deliver more compact arrays with inherently lower embodied ecological impact per unit of generation than standard efficiency modules.



The undulating east-west configuration prevents self-shadowing of the array and provides a low-profile installation with maximised packing factor. It also helps maximise self-consumption due to its flatter and broader power output yield profile.

Total yield of this array will be approximately 46 MWh per annum equating to an estimated annual carbon emissions offset of 43 tonnes CO2-e per annum.





East facing array output

Print Results	23,314 kWh/Year*	
Month	Solar Radiation (kWh/m ² /day)	AC Energy (kWh)
January	6.74	3,127
February	5.99	2,546
March	4.62	2,186
April	3.38	1,572
May	2.10	1,017
June	1.88	882
July	2.03	1,002
August	2.59	1,278
September	3.76	1,788
October	4.87	2,340
November	5.45	2,513
December	6.60	3,063
Annual	4.17	23,314

West facing array output

RESULTS

23,381 kWh/Year*

Month	Solar Radiation (kWh/m ² /day)	AC Energy (kWh)
January	6.83	3,182
February	6.00	2,550
March	4.60	2,175
April	3.35	1,550
May	2.11	1,021
June	1.88	879
July	1.96	960
August	2.49	1,219
September	3.83	1,821
October	5.00	2,397
November	5.59	2,580
December	6.57	3,048
nual	4.18	23,382

Appendix E. Site Management Plan

During the construction phase, the key pollutants at risk of entering the stormwater system include:

- Sediments (soil, sand, gravel and concrete washings); and
- Litter, debris etc.

These pollutants arise from factors such as dirt from construction vehicles, stockpiles located close to surface runoff flow paths, and surface runoff from disturbed areas during earthmoving and construction works. It is therefore important to have measures that either prevent or minimise the pollutant loads entering stormwater system during construction. In order to mitigate the impacts of the above pollutants on the stormwater system, the following stormwater management strategies will be implemented during the construction phase as appropriate:

- Installation of onsite erosion and sediment control measures. All installed control measures shall be regularly inspected & maintained to ensure their effectiveness. Such measures may include (but not limited to):
 - Silt fences
 - sediment traps
 - hay bales
 - geotextile fabrics
- Where possible, litter bins with a lid will be used to prevent litter from getting blown away and potentially entering stormwater drains.

Additionally, the following work practices shall be adopted to reduce stormwater pollution:

- Site induction by the head contractor/ builder to make personnel aware of stormwater management measures in place
- Employ suitable measures to reduce mud being carried off-site into the roadways such as installing a rumble grid/ gravel/ crushed-rock driveway (or equivalent measure) to provide clean access for delivery vehicles, removing mud from vehicle tyres with a shovel etc.
- Safe handling and storage of chemicals, paints, oils and other elements that could wash off site to prevent them from entering stormwater drains.
- Where practicable, stockpiles will be covered, located within the site's fence and away from the lowest point of the site where surface runoff will drain to. This initiative will minimise erosion.

Accordingly, the measures presented above are considered appropriate for the proposed development at this stage of the project. The measures will reduce the pollutants entering stormwater system from the site during construction works thereby protecting waterways.

Furthermore, the initiatives are consistent with the Application Requirements set out in Clause 53.18 of the City of Whitehorse Planning Scheme.

Appendix F. Daylight Modelling

Daylight modelling has been undertaken to determine internal daylight levels within the medical centre as well as apartment living areas and bedrooms on levels 1, 2, 5 and 10.

When the results of the daylight modelling from the lower levels are extrapolated to the upper levels with improved daylight access, it is confirmed that: The daylight modelling confirms that:

Kitchen/living areas meet the Best Practice standard

80.4%

Bedrooms meet the Best Practice standard

95.5%

Results of daylight assessment are based on the BESS standard for daylight modelling as follows:

Residential developments:

- At least 80% of dwellings achieve a daylight factor greater than 1% to 90% of the floor area of each living area, including kitchens;
- At least 80% of dwellings achieve a daylight factor greater than 0.5% to 90% of the floor area in all bedrooms.

The modelling results and software input assumptions are provided below.

F.1 Model Images

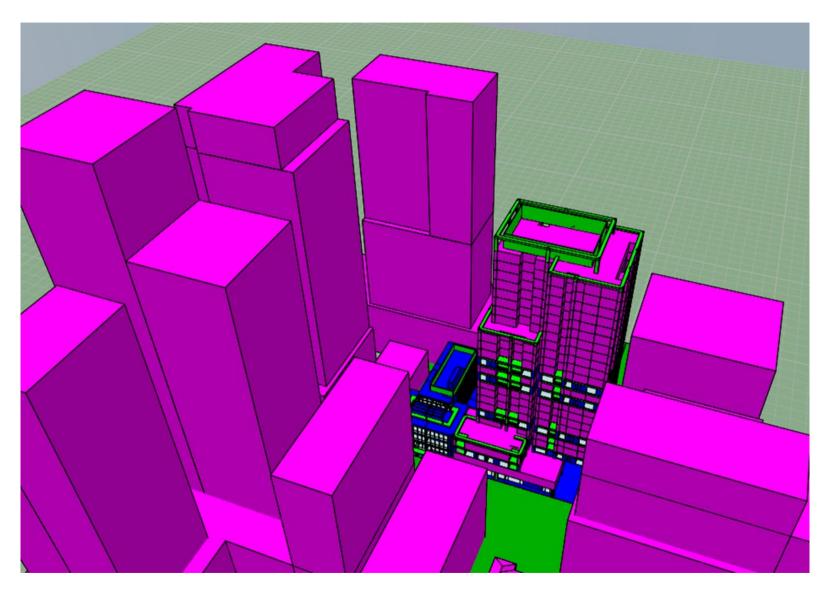


Figure 4 Model view from West

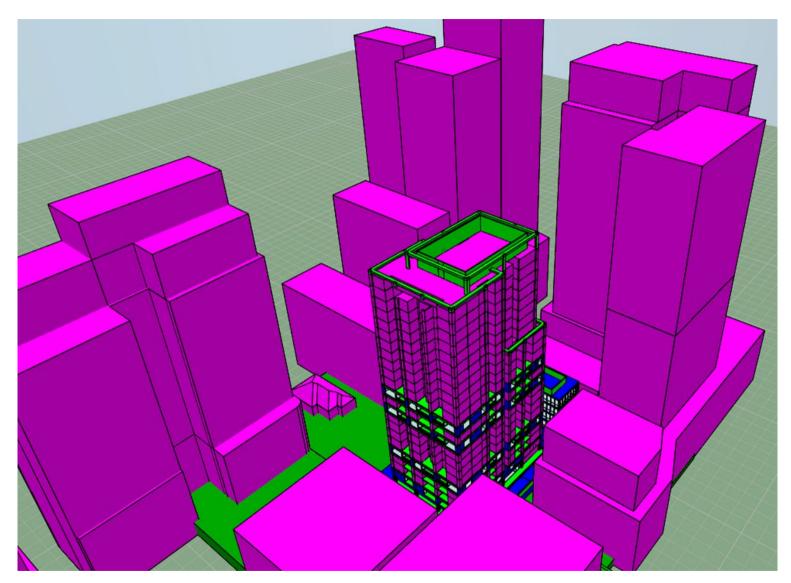


Figure 4 Model view from North-East

F.2 Summary of Results

F.2.1 Living/Kitchen Areas

Level(s)	Number of rooms	Number of rooms achieving 'Best Practice'
L01	5	2
L02	11	4
L03	11	5*
L04	10	5*
L05	10	5
L06	10	5*
L07	10	8*
L08	10	8*
L09	10	9*
L10	10	9
L11	10	9*
L12	10	10*
L13	10	10*
L14	10	10*
L15	10	10*
L16	6	6*
L17	6	6*
L18	6	6*
L19	6	6*
L20	6	6*

L21	6	6*
L22	6	6*
L23	5	5*
Total	194	156
Percentage of Total		80.4%

* Indicates extrapolated result.

F.2.2 Bedrooms

Level(s)	Number of rooms	Number of rooms achieving 'Best Practice'
L01	8	5
L02	18	13
L03	18	13*
L04	16	15*
L05	16	15
L06	16	16*
L07	16	16*
L08	16	16*
L09	16	16*
L10	16	16*
L11	16	16*
L12	16	16*
L13	16	16*
L14	16	16*

L15	16	16*
L16	12	12*
L17	12	12*
L18	12	12*
L19	12	12*
L20	12	12*
L21	12	12*
L22	12	12*
L23	12	12*
Total	332	317
	Percentage of Total	95.5%

* Indicates extrapolated result.

F.4 Daylight Contour Plots

<u>Residential</u>

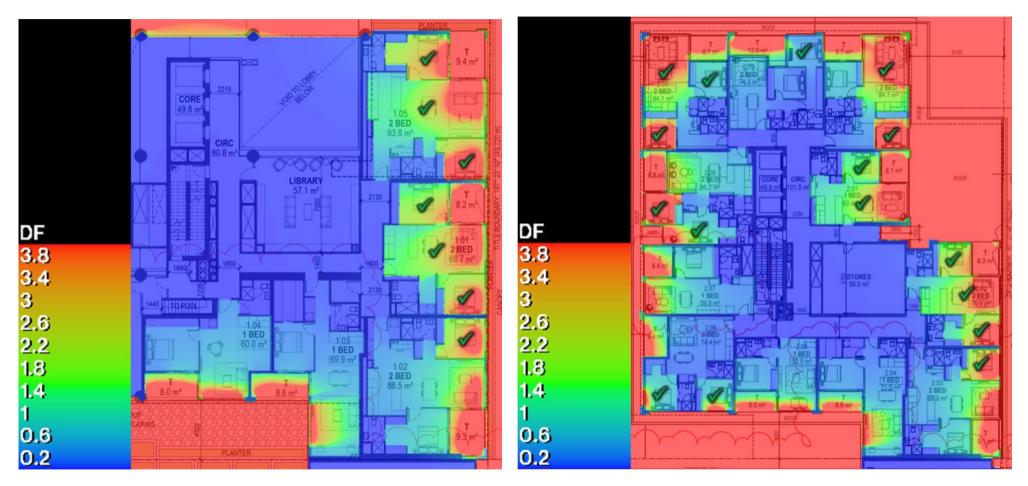


Figure 6 Level 1

Figure 7 Level 2

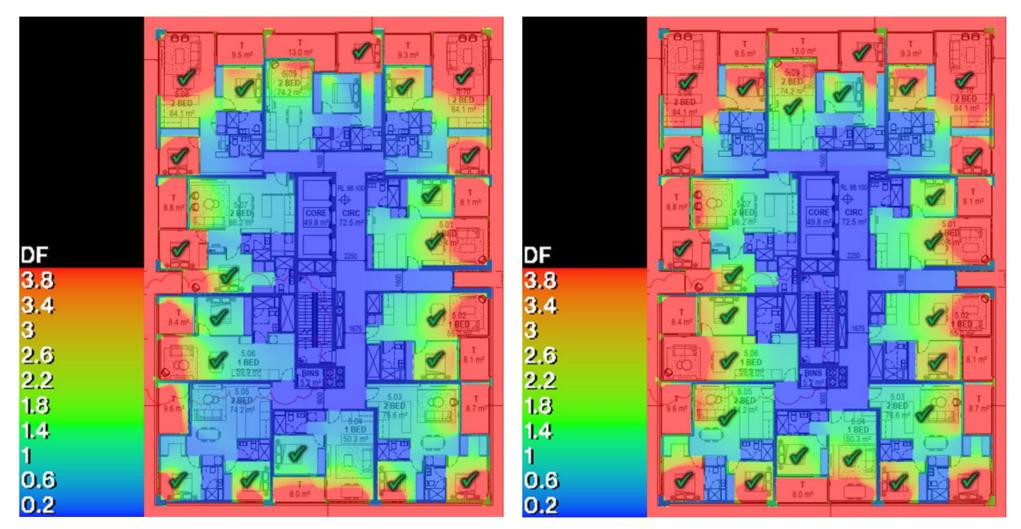


Figure 8 Level 5

Figure 9 Level 10

<u>Commercial</u>

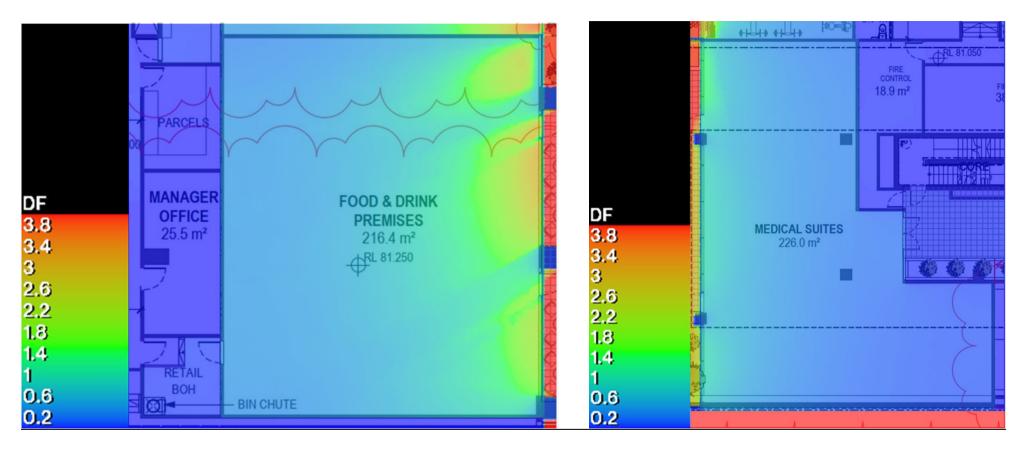


Figure 10 Ground Floor F&B

Figure 11 Ground Floor Medical Suites

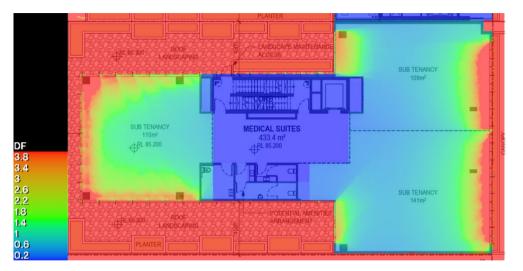
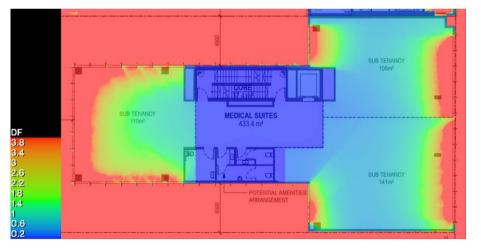




Figure 12 Level 01







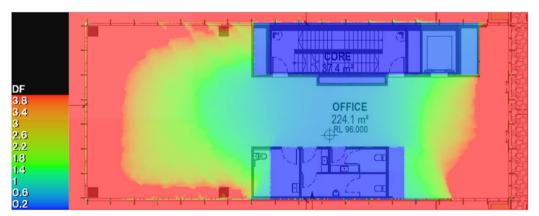


Figure 15 Level 04

F.5 Assumptions

The following assumptions have been made for the Visible Light Transmittance (VLT) values for all glazing applicable to this analysis:

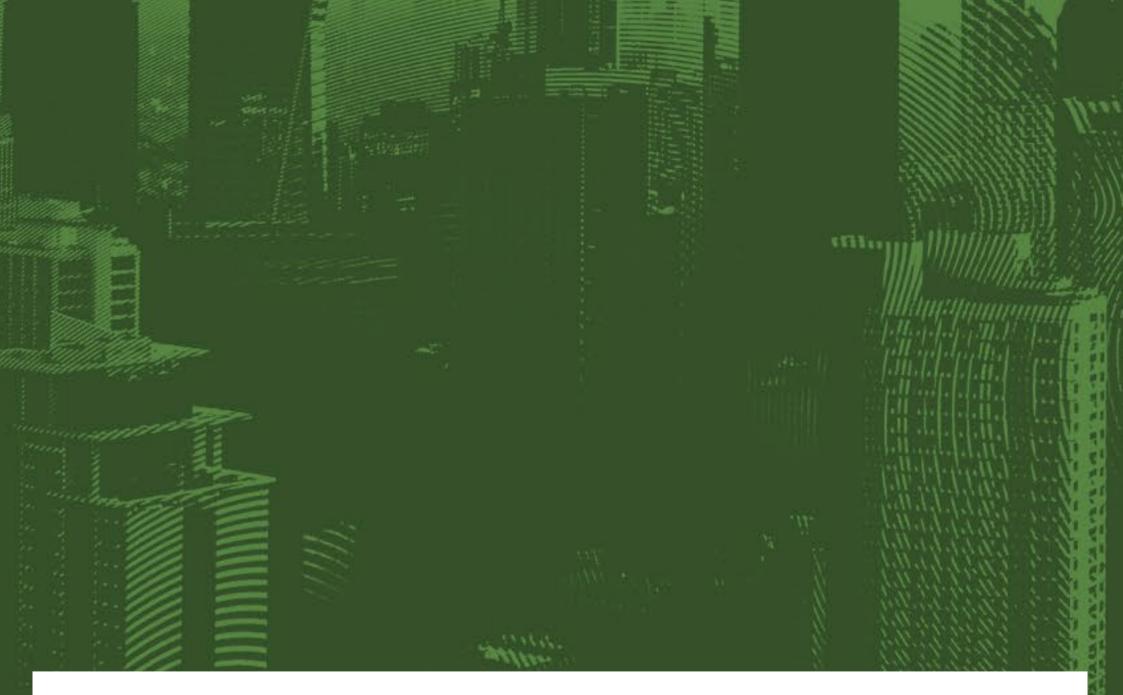
Assumed Glazing Visual Light Transmittance

Glazing Type	Visible Light Transmittance (VLT)
	%
External Glazing – Clear, Double Glazing (GL01)	70

Assumed Surface Reflectances

Construction Element	Reflectance (%)	Description
Internal floors	30	Assumes a medium-coloured carpet
Balcony pavers	40	Assumes light concrete/ tile finish
Balcony walls & soffits	70	White finish
Internal walls (Residential)	94	Dulux Vivid White paint
Internal walls (Commercial)	70	Assumes White paint
Internal Ceilings (Residential)	94	Dulux Vivid White paint
Internal Ceilings (Commercial)	80	Assumes White paint
External ground	10	Asphalt
Roof	60	Assumes light coloured finish
Concrete finish (CF01)	30	Earth tone
Textured concrete (CF02)	40	Mid grey
Concrete finish (CF03)	40	Mid grey
Vertical battens (CS01)	40	Mid grey
Vertical battens (CS02)	30	Timber look
Metal Cladding (MC01)	15	Dark Grey
Metal Finish (MF01)	15	Dark Grey
Spandrel glazing (GT02)	70	White finish
Equitable buildings	40	Medium colour finish
Adjacent concrete buildings	40	Concrete finish
Adjacent brick buildings	30	Red brick finish

Sky conditions: 10K Lux CIE overcast s



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