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Sustainable Management Plan

7 Poplar Street & 3-9 Wellington Street,  
Box Hill

Ark Resources

# 7 Poplar Street & 3-9 Wellington Street Box Hill

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## 1.0 Introduction

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The proposal seeks to amend the existing approved 24-storey residential development at 7 Poplar Street & 5-9 Wellington Road, to include the land south at 3 Wellington Road and provide an extended 5-storey commercial built form.

The proposed amended response has been designed to meet the objectives of the City of Whitehorse's Sustainability Policy Clauses 19-03-3S and 22.10 (Integrated Water Management and Environmentally Sustainable Development Policy) of the Whitehorse Planning Scheme. This report demonstrates how the proposed amended development meets the policy objectives of Clause 22.10-2 of the Planning Scheme, and addresses Condition 9 requirements of Planning Permit WH/2021/636.

This report confirms that a combination of sustainable building management practices, design initiatives, fixtures, systems, appliances, materials and finishes will be integrated into the building in order to attain a 4 star Green Star Design & As Built performance standard. The standard achieved is defined as *Best Practice* in terms of environmental design.

The development also meets the Best Practice standard for Urban Stormwater Quality and is therefore also consistent with the City of Whitehorse's Stormwater Management objectives (set out in Clauses 19-03-3S and 53.18 of the Planning Scheme).

Accordingly, the performance outcomes achieved by the proposed amended development considered to be appropriate for a mixed-use development of this scale.

This report contains a summary of:

- Environmental objectives adopted for the development
- Sustainable design initiatives integrated into the design of the project.

Performance outcomes in this report are based on:

- Discussions and correspondence with Ed Grutzner, Rothelowman.

Architectural drawings prepared by Rothelowman set out below.

Demolition Plan	TP00.03	C
Basement 3	TP01.02	C
Basement 2	TP01.03	C
Basement 1	TP01.04	C
Lower Ground	TP01.05	C
Upper Ground	TP01.06	C
Level 1	TP01.07	C
Level 2	TP01.08	C
Level 3	TP01.09	C
Level 4	TP01.10	C
Levels 5-15	TP01.11	C
Levels 16-22	TP01.20	C
Level 23	TP01.27	C
Roof	TP01.28	C
East Elevation	TP02.01	C
South Elevation	TP02.02	C
West Elevation	TP02.03	C
North Elevation	TP02.04	C
Service Cupboard Elevations	TP02.10	B
Section A	TP03.01	C
Section B	TP03.02	C
Development Summary	TP10.00	A



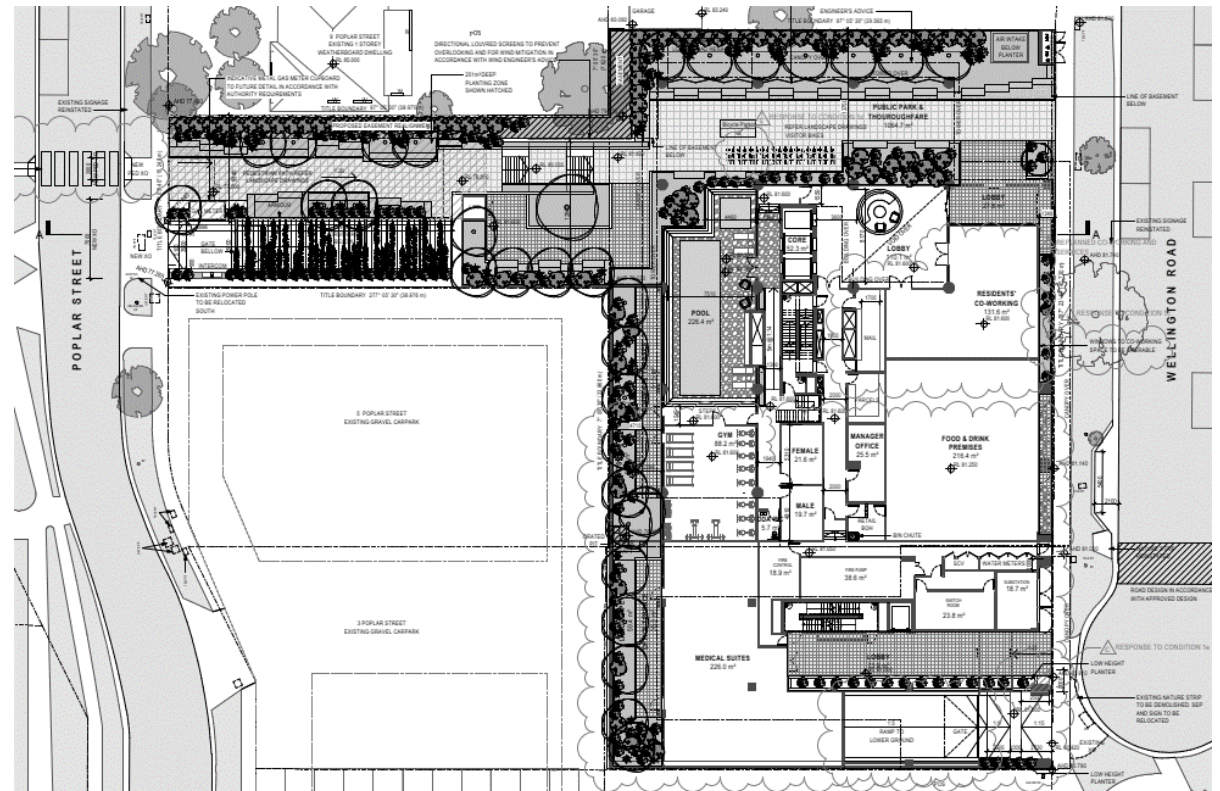
## 2.0 Site Description

The building comprises the following:

- 194 apartments / 332 bedrooms
- 526 residents (approximately)
- Communal areas including co-working space and gymnasium
- Commercial tenancies including medical centre, food & drink premises
- Public east/west pedestrian link
- Located within City of Whitehorse
- Site area 3,184 m<sup>2</sup> (approximately)
- Surrounds a mix of commercial & residential use

A plan of the proposed development is provided below.

An image of the site and the surrounding locale is provided on the following page.










### 3.0 Key ESD Initiatives

A detailed analysis has been undertaken in order to nominate the ESD initiatives required and confirm the performance outcomes achieved. The results of this analysis are set out in the remainder of this report.

The following key sustainable design initiatives have been incorporated into this project:

<b>Energy</b> 40kW rooftop solar photovoltaic system 	<b>Urban Ecology</b> Deep planting areas 
<b>Water</b> Rainwater harvesting system for toilet flushing 	<b>Performance</b> High-performance glazing and energy efficient building services, appliances and fixtures 

An assessment of sustainable design outcomes of the proposed development has been undertaken with Green Star D&AB (v1.3), FirstRate5 and MUSIC benchmarking tools. The information presented in this report demonstrates that:

<b>NatHERS Energy Rating</b> The project will achieve a development average NatHERS energy rating of:  6.5 star	<b>Green Star</b> The development achieves a 4 star Green Star Design & As Built rating  4 star
	<b>Stormwater</b> The development meets the Best Practice standard for stormwater quality. 



### 3.1 NatHERS Energy Ratings

FirstRate5 (Version 5.3.1a (3.21)) energy ratings have been undertaken for a representative sample of the apartments.

The development achieves a 6.5 star average NatHERS rating which meets the Councils ‘best practice’ standard of 6.5 stars and represents a high standard of thermal efficiency.

Please refer to Appendix A for individual results, preliminary NatHERS Certificates and modelling assumptions.

The results of the modelling confirm that:

- All individual apartments have cooling loads of less than 30 MJ/m2 and therefore meet the energy efficiency objectives set out in clause 58.03-1 of the Planning Scheme for the relevant climate zone (NatHERS Climate Zone 62 Moorabbin);
- The average heating load of 81.3 MJ/m2 and the cooling load of 16.3 MJ/m2 are significantly less than the relevant threshold loads set out in NCC 2019 for Class 2 dwellings (average heating load <109 MJ/m2, average cooling load <26 MJ/m2), and;
- The individual apartment heating and cooling loads are significantly less than the relevant threshold loads set out in NCC 2019 for Class 2 dwellings (heating load <147 MJ/m2, cooling load <37 MJ/m2).

<div><div>NatHERS Rating</div><div>The development will achieve an average NatHERS energy rating of:</div><div>6.5 star</div></div>	
<div>Heating Load Average</div> <div>81.3 MJ/m<sup>2</sup></div>	<div>Cooling Load Average</div> <div>16.3 MJ/m<sup>2</sup></div>

### 3.2 MUSIC Modelling

To assess the quality of stormwater runoff from the site, an analysis has been undertaken using MUSIC Modelling software.

The proposed amended development exceeds the pollutant load reduction targets set out in the Best Practice Environmental Management Guidelines (BPEMG) and meets Clause 19.03-3S of the planning scheme and Condition 9(b) of the planning permit.

Reduction in Total Suspended Solids (TSS) load:  80.9%	Reduction in Total Phosphorus (TP) load:  60.4%
Reduction in Total Nitrogen (TN) load:  57.6%	Reduction in Gross Pollutants (GP) load:  99.4%

The MUSIC modelling confirms that the project will meet Green Star Column B targets. Refer to Appendix B for the MUSIC rating results, Appendix B.6 for rainwater harvesting and reliability results and Appendix C for the WSUD Maintenance Manual.

A rainwater harvesting system will be installed comprising:

- Rainwater harvesting from all roofs and terrace areas (approx. 1,751m²):
- Filtration and treatment of all rainwater prior to draining into the tank
- Total storage volume of 60kL rainwater tanks
- Re-use of captured water for flushing of all toilets and irrigation

In addition to the harvesting and re-use of rainwater, the following features will be incorporated into the proposed design to facilitate treatment of stormwater runoff:

- Treatment of runoff from ground level paving (195m²) by a 4m² raingarden located on the northern boundary of the site.
- Landscape areas that promote infiltration and reduce runoff during storm events.
- A SPEL Vortceptor gross pollutant trap (or equivalent primary treatment device) to capture generated onsite.

#### FILTRATION AND TREATMENT

In order to achieve best practice reduction of stormwater pollutants and maximise potable water conservation it is necessary to harvest rainwater from trafficable catchment areas. The rainwater tanks will serve toilet flushing and irrigation demand. Enhanced rainwater filtration will therefore be incorporated as follows:

- Down-pipes before rainwater tanks
- First-flush diverters
- Automatic backwash screen filter (100 micron) with self-cleaning via timer control
- Pressure pipes after rainwater pump
- 3 Stage Filtration (20 / 5 / 1 micron strainers)



### 3.3 Green Star

The Green Star Design & As Built (Version 1.3) tool has been used as a benchmarking framework for the proposed scheme and demonstrates that the development has the preliminary design potential to achieve a 4 star standard.

A detailed Green Star assessment has been undertaken to confirm the credits achievable by the proposed scheme.

The initiatives which contribute to the 4 star Green Star rating are detailed in Section 3.3.1 below.

Please note that this analysis is based on the best information currently available in relation to the technical and commercial feasibility of the initiatives proposed. Further investigation will be undertaken during design development which may result in change to the package of initiatives specified in order to meet the 4 star Green Star standard.

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**Green Star Rating**

4 star

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**Total Points Targeted**

45 pts

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Note that a minimum of 45 points must be achieved for a 4 star Green Star rating to be achieved. The development will attain a 4 star Green Star standard however certification of the rating with the Green Building Council will not be undertaken.

### 3.3.1 Green Star Criteria

The key design elements and processes which underpin the preliminary Green Star rating are summarised in the table below. The design attributes will be incorporated into the design in accordance with the technical criteria for each credit set out in the Green Star Design & As Built v1.3 Technical Manual.

Further information in relation to key performance outcomes is provided in the Appendices to this report as referenced in the right hand column of the table.

Green Star Element	Design Attribute	Reference
Management	<ul style="list-style-type: none"> <li>– Design Intent Report prepared</li> <li>– Provide floor-by-floor metering; plus independent metering for all loads &gt;5% of annual building energy use or 100kW; and metering for common water use consuming 10% of development's water use</li> <li>– Comprehensive project-specific environmental management plan implemented during construction</li> </ul>	Conditional Requirements
	<ul style="list-style-type: none"> <li>– Green Star Accredited Professional involved</li> <li>– Services and Maintainability Review undertaken during design stage</li> <li>– Comprehensive commissioning and tuning of building systems</li> <li>– Detailed guide to building systems provided to council and residents</li> <li>– Monitoring systems in accordance with CIBSE TM39</li> <li>– Head contractor to have current ISO 14001 certification</li> <li>– Operational Waste Management Plan prepared including targets and monitoring</li> </ul>	
Indoor Environmental Quality	<ul style="list-style-type: none"> <li>– Lighting systems comprise flicker free luminaires and a Colour Rendering Index (CRI) greater than 80</li> <li>– Strategies to reduce glare incorporated into the design</li> </ul>	Conditional Requirements
	<ul style="list-style-type: none"> <li>– Ventilation systems to comply with ASHRAE 62.1, and pre-cleaned prior to handover</li> <li>– Building systems designed to enable effective cleaning and maintenance</li> <li>– Exhaust systems to directly exhaust pollutants to exterior</li> <li>– Lighting systems designed to meet best practice illuminance levels and glare reduction</li> <li>– Specification of low VOC paints, adhesives, sealants and carpets</li> <li>– Specification of low formaldehyde engineered wood products</li> </ul>	
Energy	<ul style="list-style-type: none"> <li>– Attain a development NatHERS area-weighted energy rating average of 6.5 stars and a minimum individual NatHERS energy rating of 5.5 stars for each apartment.</li> </ul>	Conditional Requirement
	<ul style="list-style-type: none"> <li>– Development NatHERS energy rating average 6.5 stars. Double glazing to be specified to all external windows (Condition 9(o))</li> <li>– Centralised all-electric heating and cooling and domestic hot water provided by roof mounted modular heat pump system with high operating efficiency (IPLV) (Condition 9(l))</li> <li>– Same system can also provide heating to the pool via heat exchanger</li> <li>– 40kWp rooftop mounted photovoltaic system (with 30kW inverter) serving common area power (Condition 9(n))</li> </ul>	Appendix A    Appendix D

Green Star Element	Design Attribute	Reference
	<ul style="list-style-type: none"> <li>Embodied ecological impacts of PV array and support racking will be reduced by over 44% through use of 400Wp 60-cell modules with efficiency over 44% greater than standard PV modules.</li> <li>Embodied impacts of PV modules will be further reduced by procurement from a manufacturer with an <i>above average</i> rating on the current version Silicon Valley Toxics Coalition Solar Scorecard.</li> <li>Energy efficient lighting systems with 10% improvement on NCC requirements (Condition 9(k)) <ul style="list-style-type: none"> <li>Car park ventilation fitted with CO sensors (Condition 9(p))</li> <li>Car park lighting, where reasonably safe to do so, fitted with motion sensors or timers (Condition 9(q))</li> <li>All common, external, service and lift area lighting fitted with sensors or timers (Condition 9(r))</li> <li>Common, service and lift area ventilation fitted with sensors or timer (Condition 9(s))</li> </ul> </li> <li>Energy efficient appliances within 1 star of best available at time of tender (Condition 9(l))</li> <li>Lift energy efficiency is class A or B and idle energy and standby energy is Level 1 according to ISO 25745-2</li> </ul>	
Transport	<ul style="list-style-type: none"> <li>Accessible public transport options</li> <li>Electric vehicle charging infrastructure for 10% of parks equipped with demand-managed EV chargers and 50% EV charger ready (Condition 9(u))</li> <li>A total of 110 bike racks for residents and staff located across the basement and lower ground levels</li> <li>End of Trip facilities including 6 showers and 20 lockers in the lower ground level</li> <li>19 visitor racks provided at ground level (Condition 1(d))</li> <li>A WalkScore® of 89 out of 100 points – defined as ‘Very Walkable’</li> </ul>	
Water	<ul style="list-style-type: none"> <li>Water efficient fixtures (WELS 5 star taps, 4 star toilets, 3 star showers (&lt;7.5l/min))</li> <li>Water efficient dishwashers</li> <li>Water efficient sub-soil drip irrigation system with moisture sensors and timers</li> <li>Rainwater harvesting from all roof areas: <ul style="list-style-type: none"> <li>Total storage volume of 60kL rainwater tanks</li> <li>Re-use of captured water for toilet flushing</li> <li>Re-use of captured water for irrigation</li> </ul> </li> <li>Fire test system water storage and re-use</li> </ul>	Appendix B
Materials	<ul style="list-style-type: none"> <li>Concrete mixes to incorporate at least 30% reduction in Portland cement</li> <li>Concrete mixes to incorporate at least 50% reclaimed water</li> <li>Concrete mixes to incorporate at least 40% replacement of coarse aggregate with slag</li> <li>Specification of sustainable sourced timber (FSC or AFS) (for decking or outdoors - Condition 9(x))</li> <li>Environmentally responsible steel design and procurement</li> <li>Specification of common use PVC products that meet Best Practice Guidelines for PVC in the Built Environment</li> <li>Documentation provided on product sustainability credentials for 3% of materials used on the project (Condition 9(w))</li> </ul>	

Green Star Element	Design Attribute	Reference
	<ul style="list-style-type: none"> <li>– Divert 90% of demolition and construction waste from landfill (Condition 9(v))</li> </ul>	
Land Use & Ecology	<ul style="list-style-type: none"> <li>– No endangered or vulnerable species on site at time of purchase</li> <li>– Site does not contain old growth forest or wetland of High National Importance</li> </ul>	Conditional Requirements
	<ul style="list-style-type: none"> <li>– Native planting used on at least 2½% of the site</li> <li>– At least 75% of the total project site area comprises building or landscaping elements that reduce impact of heat island effect.</li> <li>– All non-trafficable roofs to have initial solar reflectance index of 82.</li> </ul>	
Emissions	<ul style="list-style-type: none"> <li>– All outdoor lighting to comply with AS4282:1997 for light spill to inhabited boundaries.</li> </ul>	Conditional Requirement
	<ul style="list-style-type: none"> <li>– MUSIC modelling has been undertaken to confirm the development attains the Best Practice standard for urban stormwater quality</li> <li>– Design to have an upward light output ratio &lt;5%</li> </ul>	
Innovation	<ul style="list-style-type: none"> <li>– 50% of internal paints to be ultra-low VOC type (&lt;5g/litre) (Condition 9(w))</li> <li>– 2pts for 10% of parks equipped with demand-managed EV chargers and 50% EV charger ready (Condition 9(u))</li> <li>– 1 point for MUSIC to Column B</li> </ul>	

### 3.3.2 Green Star Preliminary Design Rating

Based on the design attributes and performance outcomes set out above, the following Green Star pathway has been prepared which confirms that the development has the preliminary design potential to achieve a 4 star Green Star standard and meet Condition 9(a) of the planning permit.

#### Green Star - Design & As Built Scorecard v1.3

<b>Project:</b>	7 Poplar & 5-9 Wellington Street, Box Hill	
<b>Targeted Rating:</b>	4 Star - Best Practice	Please select the round of assessment

S87A TP Application

29/06/2023

Points Available	Total Score Targeted
100	45

CATEGORY / CREDIT	AIM OF THE CREDIT / SELECTION	CODE	CREDIT CRITERIA	Points Available	4* pathway
<b>Management</b>				<b>14</b>	
<b>Green Star Accredited Professional</b>	Appointment and active involvement of a Green Star AP to ensure tool is applied effectively and as intended.	1.1	Accredited Professional	1	1
<b>Commissioning and Tuning</b>	To encourage and recognise commissioning, handover and tuning initiatives that ensure all building services operate to their full potential.	2.0	Environmental Performance Targets	-	Complies
		2.1	Services and Maintainability Review	1	1
		2.2	Building Commissioning	1	1
		2.3	Building Systems Tuning	1	1
<b>Building Information</b>	Info facilitating understanding of systems, O&M requirements and targets to optimise performance.	4.1	Building Information	1	1
<b>Metering and Monitoring</b>	To recognise the implementation of effective energy and water metering and monitoring systems.	6.0	Metering	-	Complies
		6.1	Monitoring Systems	1	1
<b>Responsible Construction Practices</b>	To reward projects that use best practice formal environmental management procedures during construction.	7.0	Environmental Management Plan	-	Complies
		7.1	Environmental Management System	1	1
<b>Operational Waste (PCA requirement)</b>	A. Performance Pathway	8A	Performance Pathway: Specialist Plan	1	1
<b>Total</b>				<b>14</b>	<b>8</b>

Indoor Environment Quality					17	
Indoor Air Quality	To recognise projects that provide high air quality to occupants.	9.1	Ventilation System Attributes	1	1	
		9.3	Exhaust or Elimination of Pollutants	A. Removing the Source of Pollutants B. Exhausting the Pollutants Directly to the Outside	1	1
Lighting Comfort	To encourage and recognise well-lit spaces that provide a high degree of comfort to users.	11.0	Minimum Lighting Comfort		-	Complies
		11.1 General Illuminance and Glare	11.1.1 General Illuminance	B. Residential Spaces	1	1
			11.1.2 Glare Reduction	A. Prescriptive Method 1		
		11.3	Localised Lighting Control		1	1
Visual Comfort	To recognise the delivery of well-lit spaces that provide high levels of visual comfort to building occupants.	12.0	Glare Reduction	B. Blinds or Screens	-	Complies
		12.2	Views		1	1
Indoor Pollutants	To recognise projects that safeguard occupant health through the reduction in internal air pollutant levels.	13.1 Paints, Adhesives, Sealants and	13.1.1 Paints, Adhesives and Sealants	A. Product Certification	1	1
			13.1.2 Carpets	A. Product Certification		
		13.2	Engineered Wood Products	A. Product Certification	1	1
Total					17	7



Energy				22		
Greenhouse Gas Emissions	B. NatHERS Rating Pathway	15B.0 Conditional Requirement: NatHERS Pathway		-	Complies	
		15B.1 Thermal and Energy Performance		6	1	
		15B.2 Building Services and Appliances	15B.2.1 Lighting		1	1
			15B.2.2 Ventilation and Air Conditioning	A. Mechanically Conditioned Spaces	2	1
				B. Spaces With Mechanical		
				C. Naturally Ventilated Spaces		
			15B.2.3 Domestic Hot Water		2	0.5
			15B.2.4 Appliances & Equipment		1	1
15B.2.7 Vertical Transportation		1	1			
Total				17	5.5	

Transport					10	
Sustainable Transport	B. Prescriptive Pathway	17B.1	Access by Public Transport		3	3
		17B.3	Low Emission Vehicle Infr	B. Parking for Electric Vehicles	1	1
		17B.5	Walkable Neighbourhoods	A. Proximity to Amenities	1	1
Total					7	5

Water			12	
Potable Water	B. Prescriptive Pathway	18B.1 Sanitary Fixture Efficiency	1	1
		18B.2 Rainwater Reuse	1	
		18B.3 Heat Rejection	2	1
		18B.4 Landscape Irrigation	1	1
		18B.5 Fire Protection System Test Water	1	1
Total			6	4

Materials					14	
Life Cycle Impacts	B. Prescriptive Pathway - Life Cycle Impacts	19B.1 Concrete	19B.1.1 Portland Cement Reduction		2	1
			19B.1.2 Water Reduction		0.5	0.5
			19B.1.3 Aggregates Reduction	B. Fine Aggregate Reduction	0.5	0.5
		19B.4	Structural Timber	19B.4.0 Responsible Sourcing	-	Complies
Responsible Building Materials	To reward projects that include materials that are responsibly sourced or have a sustainable supply chain.	20.1	Structural and Reinforcing Steel	20.1.0 Responsible Steel Maker	-	Complies
				A. Responsible Steel Fabricator	1	1
		20.2	Timber	A. Certified Timber	1	1
		20.3	Permanent Formwork, Pipes, Flooring, Blinds and Cables	B. Best Practice Guidelines for PVC	1	1
Sustainable Products	To encourage sustainability and transparency in product specification.	21.1	Product Transparency and Sustainability	B. Recycled Content Products	3	1
				C. Environmental Product Declarations (EPDs) D. Third Party Certification		
Construction and Demolition Waste	A. Fixed Benchmark	22.0	Reporting Accuracy	A. Compliance Verification Summary	-	Complies
		22A	Fixed Benchmark		1	1
Total					12	7

Land Use & Ecology					6	
Ecological Value	To reward projects that improve the ecological value of their site.	23.0	Endangered, Threatened or Vulnerable Species	A. EPBC	-	Complies
		23.1	Ecological Value		3	1
Sustainable Sites	To reward projects that choose to develop sites that have limited ecological value, re-use previously developed land and remediate contaminate land.	24.0	Conditional Requirement		-	Complies
		24.1	Reuse of Land	A. Previously Developed Land	1	1
Heat Island Effect	To encourage and recognise projects that reduce the contribution of the project site to	25.1	Heat Island Effect Reduction		1	1
Total					6	3

Emissions					5	
Stormwater	To reward projects that minimise peak stormwater flows and reduce pollutants entering public space/infrastructure.	26.2	Stormwater Pollution Targets		1	1
Light Pollution	To reward projects that minimise light pollution.	27.0	Light Pollution to Neighbouring Bodies		-	Complies
		27.1	Light Pollution to Night Sky	A. Control of Upward Light Output Ratio (ULOR)	1	1
Total					5	2

Innovation				10	
Improving on Green Star Benchmarks	Demonstrates a substantial improvement on the benchmark required to achieve full points on existing credit.	30C	Improving on Green Star Benchmarks	10	4
Total				10	4

		4* pathway
TOTAL SCORE TARGETED		45.5
Green Star rating		

## 4.0 Conclusion

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This report sets out a range of sustainable design features which are integrated into the design and specification of the proposed amended mixed-use development, in order to improve environmental outcomes during construction and occupation.

This report provides a detailed analysis of ESD performance outcomes utilising relevant ‘tools’ which are referenced in the City of Whitehorse’s Environmentally Sustainable Development, and captures Condition 9 requirements of Planning Permit WH/2021/636.

In terms of performance outcomes, the analysis presented in this report demonstrates that the proposed development can achieve a Green Star 4 Star Rating which is defined as a *best practice* standard by the Green Building Council of Australia

The analysis undertaken also confirms that the proposed development achieves a NatHERS energy rating 10% above the applicable NCC standard and also meets the Best Practice standard for Urban Stormwater Quality.

Accordingly the sustainable design outcomes from the proposed amended development are considered to be consistent with the overarching objective of the City of Whitehorse’s Environmentally Sustainable Development Policy (Clause 22.10 of the Whitehorse Planning Scheme) which requires that development should achieve a best practice standard.

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### Green Star

The combination of design features and services initiatives meets all the standards for a Green Star Design & As Built Rating of:

4 star

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### NatHERS Ratings

The development will achieve an average NatHERS energy rating of:

6.5 star

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### Best Practice

The development meets the Best Practice standard for stormwater Quality



## Appendix A. NatHERS Energy Rating Assumptions

### A.1 Building Materials

Element	Description	Added R Value
Floor Type	Suspended concrete slab	
Floor Insulation	Level 1	TBA
Wall Insulation	Lightweight party walls: 75mm R 1.5 bulk insulation	R 1.5
	Lightweight corridor walls: 75mm R 1.5 bulk insulation	R 1.5
	External Lightweight walls: 90mm R 2.5 bulk insulation	R 2.5
	Precast concrete external walls: 90mm R 2.5 bulk insulation	R 2.5
	Concrete stair/lift walls: 25mm R 0.6 bulk insulation	R 0.6
Roof Insulation	50mm Kingspan Kooltherm K10 G2 R 2.35 soffit board: Underside of concrete ceiling / roof sections shared with terraces	R 2.35
	60mm Kingspan Kooltherm K10 G2 R 2.85 soffit board: Underside of concrete roof to level 23 apartments	R 2.85
Window Frames	Thermally broken aluminium frames to Apt 23.02 Aluminium frames to windows and glazed doors to all remaining apartments. Refer to glazing schedule	
Sky Lights	Nil	
External Blinds	Nil	

#### NOTES

The added insulation R value must be equal to or higher than that specified above to meet the energy rating results.

All insulation specified for construction must meet Fire Engineer requirements

## A.2 Glazing

Window Type	Description	Whole of Window Value		LOCATION
		U	SHGC	
Sliding Door	Capral 900 Series Clear Double Glazed Low-e 6EA / 12 Argon / 6	3.19	0.48	As per elevations excluding apartments listed below
Fixed Window	Capral 419 Series Clear Double Glazed Low-e 6 / 12 Argon / 6EA	2.71	0.58	As per elevations excluding apartments listed below
Awning Window	Capral 35 Series Clear Double Glazed Low-e 6EA / 12 Argon / 6	4.42	0.41	As per elevations excluding apartments listed below
Fixed Window	Capral 419 Series Clear Double Glazed Insulglass 24mmInsulglassMax 564-Air	2.70	0.26	Apt 4.08, 9.08, 15.08 Apt 4.10, 9.10, 22.05: All kitchen/living
NatHERS Software Equivalent	CAP-055-50 A Capral 419 Flushline Fixed Window DG 838CPGy37/12Ar/6	2.70	0.26	Apt 4.01: East facing living Apt 4.03: East facing bedroom Apt 4.04, 15.04: South facing living Apt 15.10, 22.07, 23.01: East facing living Apt 23.05: All West facing bedrooms Apt 23.06: All East facing bedrooms Apt 22.03, 23.03: West facing bedroom
Awning Window	Capral 35 Series Clear Double Glazed Insulglass 24mmInsulglassMax 564-Air	4.42	0.20	Apt 4.08, 9.08, 15.08, 22.05 Apt 4.10, 9.10, 15.10, 22.07: East facing bedroom Apt 4.03: East facing bedroom Apt 22.03, 23.03: West facing bedroom Apt 23.05: All West facing bedrooms Apt 23.06: All East facing bedrooms
Sliding Door	Capral 900 Series Clear Double Glazed Insulglass 24mmInsulglassMax 564-Air	2.69	0.25	Apt 4.08: living
Thermally Broken Sliding Door	Capral Futureline SD Series Clear Double Glazed Low-e 6ET / 12 Argon / 6	2.40	0.40	Apt 23.02
NatHERS Software Equivalent	REY-002-15 B CP 50 Thermally Broken Sliding Door DG 4Sn-16Ar-4	2.50	0.40	
Thermally Broken Fixed Window	Capral Futureline 419 Series Clear Double Glazed Low-e 6ET / 12 Argon / 6	2.16	0.51	Apt 23.02



Window Type	Description	Whole of Window Value		
		U	SHGC	LOCATION
Thermally Broken Awning Window	Capral Futureline 54W Series Clear Double Glazed Low-e 6ET / 12 Argon / 6	2.87	0.39	Apt 23.02

## GLAZING NOTES

Double glazing has been specified to all external windows (Condition 9(o)).

The energy rating software accredited by the Australian Building Codes Board contains a relatively limited library of window systems. When the glazing systems specified are not available in the software, the protocol requires that the glazing type which most closely matches the specified glazing is selected for the purpose of calculating the energy rating.

The table above sets out the glazing specified for the purposes of calculating the energy rating.

The whole of window U – Value must be equal or lower than the energy rating software value and the whole of window SHGC – Value must be within +/-5% of the energy rating software value.

## A.3 General Rating Assumptions

Item	Details
Floor Coverings	<ul style="list-style-type: none"><li>– Tile to bathrooms, laundries</li><li>– Carpet to bedrooms</li><li>– Timber to all remaining areas</li></ul>
Window Coverings	<ul style="list-style-type: none"><li>– Holland blinds to all windows. (Regulation Mode)<sup>1</sup></li></ul>
Draught Proofing	<ul style="list-style-type: none"><li>– Weather strips to all entry &amp; external doors and windows.</li><li>– Seal / self-closing to all exhaust fans.</li></ul>
Down lights	<ul style="list-style-type: none"><li>– Recessed down lights in ceiling /roof space to be sealed type / IC 4 rated to provide air tightness and contact with insulation</li></ul>
General	<ul style="list-style-type: none"><li>– All party walls are classed as neighbour walls.</li></ul>
Shading	<ul style="list-style-type: none"><li>– Overshadowing from adjoining buildings has been incorporated into the energy ratings</li></ul>

### NOTES

Changes to any of the above stated specifications may affect energy performance and invalidate the energy ratings detailed in this report.

Sealing of gaps and cracks: inadequate sealing of gaps and cracks can negatively affect the energy performance of a dwelling. Provide sealing in accordance with NCC 2019 Part J3.

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<sup>1</sup> Holland blinds are assumed for regulatory purposes only.

## A.4 Preliminary NatHERS Certificates

Preliminary NatHERS Certificates provided to meet Condition 9(j)

# 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\*** Class 2  
**Type** New Home

### Plans

**Main plan** -  
**Prepared by** -



### Construction and environment

<b>Assessed floor area (m<sup>2</sup>)*</b>		<b>Exposure type</b>
Conditioned*	70	exposed
Unconditioned*	4	<b>NatHERS climate zone</b>
Total	74	62 Moorabbin Airport
Garage	-	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>104</b>	<b>19.5</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### 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](http://www.FR5.com.au).



### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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

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

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



Certificate Check

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

Genuine certificate

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

Ceiling penetrations\*

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

Windows

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

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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.



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	4321	fixed	0.0	W	No
Kitchen/Living	CAP-057-13 A	Opening 8	2700	2350	sliding	30.0	E	No

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
2	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
3	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
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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	E	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	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

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

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	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	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

## 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

## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	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.
<b>Ceiling penetrations</b>	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.
<b>Conditioned</b>	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.
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	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.
<b>Exposure category - exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category - open</b>	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).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category - protected</b>	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country.

Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

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

### Disclaimer

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

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

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

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

<b>National Construction Code (NCC) Class</b>	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 <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	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 <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (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.
<b>Roof window</b>	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.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	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.
<b>Skylight</b> (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.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	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

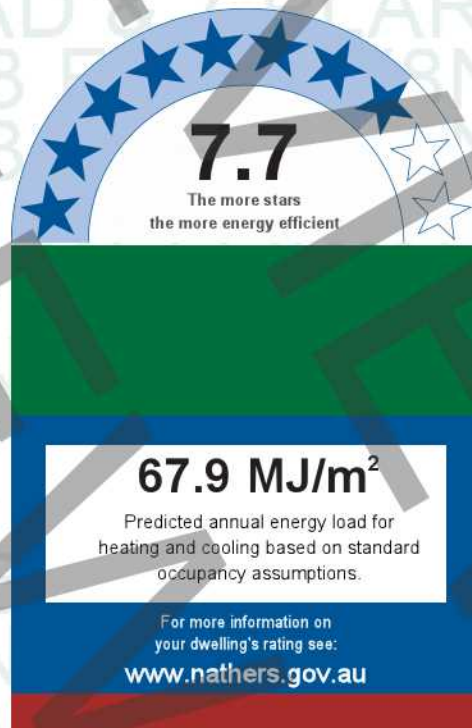
Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

### Property

**Address** 2, 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

<b>Assessed floor area (m<sup>2</sup>)*</b>		<b>Exposure type</b>
Conditioned*	61	exposed
Unconditioned*	3.4	<b>NatHERS climate zone</b>
Total	64.4	62 Moorabbin Airport
Garage	-	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>55.9</b>	<b>12</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>



### Accredited assessor

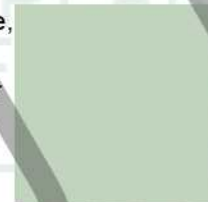
<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### About the rating

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

### Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting [www.FR5.com.au](http://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](http://www.abcb.gov.au).

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



Certificate Check

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

Genuine certificate

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

Ceiling penetrations\*

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

Windows

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

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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



## NatHERS Certificate

7.7 Star Rating as of 11 Jul 2023

Bedroom 1	CAP-055-52 A	Opening 21	2700	2700	fixed	0.0	N	No
Bedroom 2	CAP-051-06 A	Opening 20	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

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
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
3	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
----------	---------	-------------	------------	-------------	---	-----------------------------------

\* Refer to glossary.

## NatHERS Certificate

7.7 Star Rating as of 11 Jul 2023

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	E	1715	Yes
Kitchen/Living	3	2700	3584	N	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	CONPB	25.2	Enclosed	R0.0	Timber

## Ceiling type

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

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	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



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

## Explanatory Notes

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<b>Ceiling penetrations</b>	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.
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# Nationwide House Energy Rating Scheme

## NatHERS Certificate

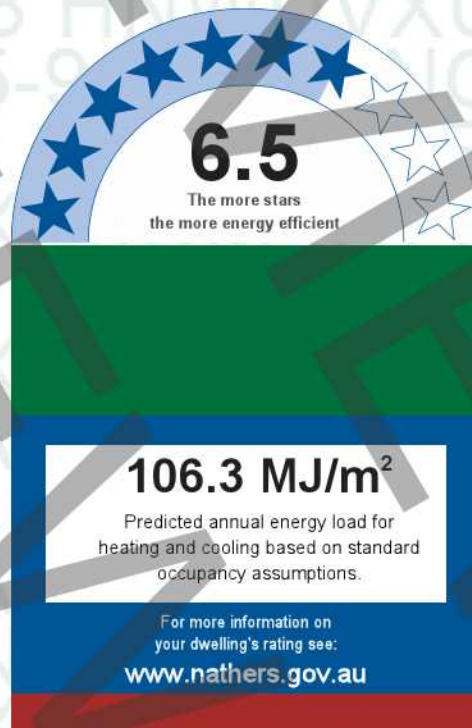
Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

### Property

**Address** 3, 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

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure type</b>
Conditioned* 70	exposed
Unconditioned* 4	<b>NatHERS climate zone</b>
Total 74	62 Moorabbin Airport
Garage -	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>86.6</b>	<b>19.7</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### About the rating

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### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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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.

### Exposure\*

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

### Provisional\* values

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

## Additional Notes

### Window and glazed door *type and performance*

#### Default\* windows

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

#### Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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
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-051-07 A	Opening 10	2700	2050	awning	10.0	E	No
Bedroom 2	CAP-057-13 A	Opening 7	2700	2679	sliding	30.0	N	No
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-055-52 A	Opening 9	2700	1825	fixed	0.0	N	No
Kitchen/Living	CAP-051-06 A	Opening 12	2700	1825	awning	10.0	N	No

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m <sup>2</sup> )	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m <sup>2</sup> )	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No
2	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
3	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2700	510	S	0	No
Bedroom 1	2	2700	2487	S	3092	Yes
Bedroom 1	3	2700	3604	E	188	No
Bedroom 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	2700	2546	W	3795	Yes
Kitchen/Living	3	2700	7240	E	182	No
Kitchen/Living	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*

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

Ceiling *penetrations\**

Location	Quantity	Type	Diameter (mm)	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	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

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# Nationwide House Energy Rating Scheme

## NatHERS Certificate

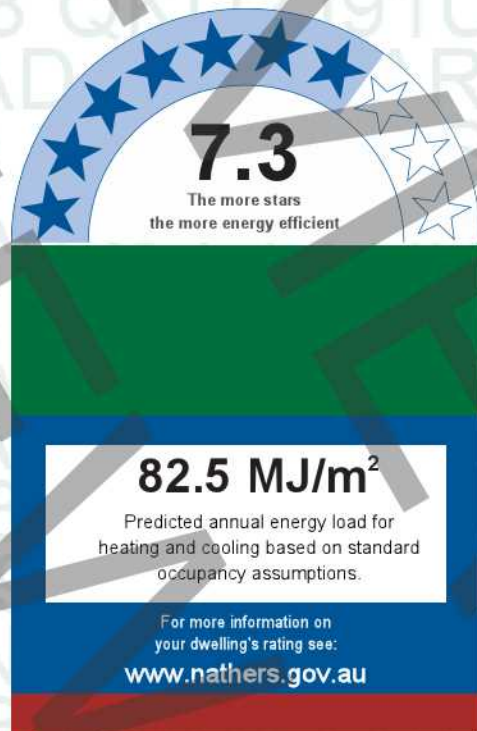
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### Property

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**Lot/DP** -  
**NCC Class\*** Class 2  
**Type** New Home

### Plans

**Main plan** -  
**Prepared by** -



### Construction and environment

<b>Assessed floor area (m²)*</b>		<b>Exposure type</b>
Conditioned*	46.3	exposed
Unconditioned*	6.4	<b>NatHERS climate zone</b>
Total	52.7	62 Moorabbin Airport
Garage	-	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>62.8</b>	<b>19.7</b>
<b>MJ/m²</b>	<b>MJ/m²</b>

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<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
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Does the 'External Door Schedule' show apartment entrance doors? Please note that an "external door" between the modelled dwelling and a shared space, such as an enclosed corridor or foyer, should not be included in the assessment (because it overstates the possible ventilation) and would invalidate the Certificate.

Exposure\*

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

Provisional\* values

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

Additional Notes

Window and glazed door type and performance

Default\* windows

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading 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



## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m <sup>2</sup> )	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

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

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
2	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No
3	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2700	2996	E	3047	Yes
Bedroom 1	2	2700	4025	N	0	No
Bath	2	2700	2185	W	0	No
Bath	2	2700	2491	N	0	No

**NatHERS Certificate**

7.3 Star Rating as of 11 Jul 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	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	27.3	

**Floor type**

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (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/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
No Data Available			

**Ceiling penetrations\***

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Bath	1	Exhaust Fans	250	Sealed
Kitchen/Living	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



## Explanatory Notes

### About this report

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

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

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## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	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.
<b>Ceiling penetrations</b>	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.
<b>Conditioned</b>	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.
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	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.
<b>Exposure category - exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category - open</b>	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).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category - protected</b>	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	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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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.

<b>National Construction Code (NCC) Class</b>	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 <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	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 <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (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.
<b>Roof window</b>	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.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	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.
<b>Skylight</b> (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.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	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

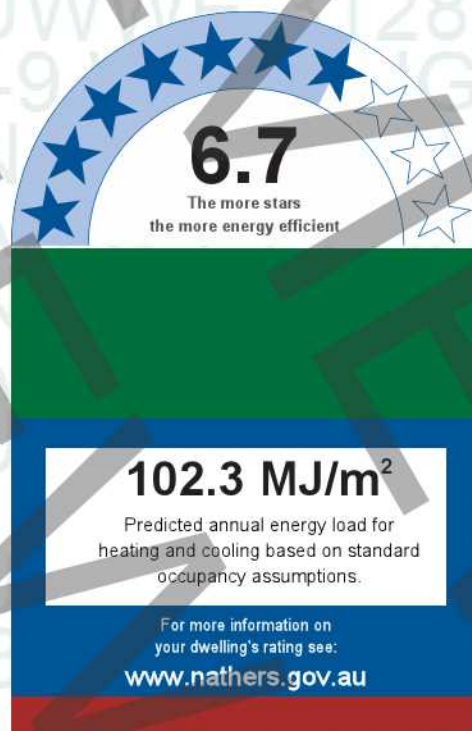
Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

### Property

**Address** 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

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure type</b>
Conditioned* 46.3	exposed
Unconditioned* 6.4	<b>NatHERS climate zone</b>
Total 52.7	62 Moorabbin Airport
Garage -	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>82.4</b>	<b>19.9</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### 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](http://www.FR5.com.au).



### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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

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

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading 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

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No
2	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
3	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2700	4025	S	0	No
Bedroom 1	2	2700	2996	E	3047	Yes
Bath	1	2700	2491	S	0	No
Bath	1	2700	2185	W	0	No



**NatHERS Certificate**

6.7 Star Rating as of 11 Jul 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 type**

Wall ID	Wall type	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	27.3	

**Floor type**

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	0.6	Enclosed	R0.0	Carpet
Bedroom 1	CONPB	11.5	Enclosed	R0.0	Carpet
Bath	CONPB	1.8	Enclosed	R0.0	Tiles
Bath	CONPB	4.6	Enclosed	R0.0	Tiles
Kitchen/Living	CONPB	20.5	Enclosed	R0.0	Timber
Kitchen/Living	CONPB	13.7	Enclosed	R0.0	Timber

**Ceiling type**

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Plasterboard	R2.4	No
Bath	Plasterboard	R2.4	No
Kitchen/Living	Plasterboard	R2.4	No

**Ceiling penetrations\***

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Bath	1	Exhaust Fans	250	Sealed
Kitchen/Living	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



## Explanatory Notes

### About this report

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<b>Conditioned</b>	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.
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<b>Exposure category - exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category - open</b>	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).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
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<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
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<b>Reflective wrap</b> (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.
<b>Roof window</b>	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.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	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.
<b>Skylight</b> (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.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
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# Nationwide House Energy Rating Scheme

## NatHERS Certificate

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** -



**114.5 MJ/m<sup>2</sup>**

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](http://www.nathers.gov.au)

### Construction and environment

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure type</b>
Conditioned* 63	exposed
Unconditioned* 3.9	<b>NatHERS climate zone</b>
Total 66.9	62 Moorabbin Airport
Garage -	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>99.9</b>	<b>14.6</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### 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](http://www.FR5.com.au).



### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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

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

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



Certificate Check

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

Genuine certificate

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

Ceiling penetrations\*

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

Windows

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

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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.

Bedroom 2	CAP-055-52 A	Opening 26	2700	2350	fixed	0.0	E	No
Kitchen/Living	CAP-057-13 A	Opening 23	2700	3840	sliding	45.0	E	No

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
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
3	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2700	2978	W	0	No
Bedroom 1	2	2700	3580	S	206	No



## NatHERS Certificate

6.3 Star 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	1	2700	6848	N	0	No

## Internal wall type

Wall ID	Wall type	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	52.8	

## Floor type

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	7.3	Enclosed	R0.0	Carpet
Bedroom 1	CONPB	3.4	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	CONPB	3.1	Enclosed	R0.0	Carpet
Bath	CONPB	3.9	Enclosed	R0.0	Tiles
Kitchen/Living	CONPB	18.3	Enclosed	R0.0	Timber
Kitchen/Living	CONPB	16.2	Enclosed	R0.0	Timber

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Plasterboard	R2.4	No
Bedroom 2	Plasterboard	R2.4	No
Bed 2 Ensuite	Plasterboard	R2.4	No
Bed 2 WIR	Plasterboard	R2.4	No
Kitchen/Living	Plasterboard	R2.4	No

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Bed 2 Ensuite	1	Exhaust Fans	250	Sealed
Bath	1	Exhaust Fans	250	Sealed

\* Refer to glossary.



**NatHERS Certificate**

6.3 Star Rating as of 11 Jul 2023

Kitchen/Living	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

## Explanatory Notes

### About this report

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## Glossary

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<b>Conditioned</b>	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.
<b>Custom windows</b>	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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<b>Entrance door</b>	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.
<b>Exposure category - exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category - open</b>	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).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category - protected</b>	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	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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### Disclaimer

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

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

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

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

<b>National Construction Code (NCC) Class</b>	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 <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	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 <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (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.
<b>Roof window</b>	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.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	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.
<b>Skylight</b> (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.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	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** 7, 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

<b>Assessed floor area (m<sup>2</sup>)*</b>		<b>Exposure type</b>
Conditioned*	39.2	exposed
Unconditioned*	4.4	<b>NatHERS climate zone</b>
Total	43.6	62 Moorabbin Airport
Garage	-	



### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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

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**124.5 MJ/m<sup>2</sup>**

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](http://www.nathers.gov.au)

### Thermal performance

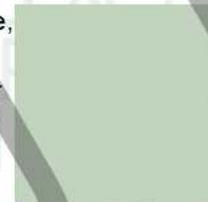
<b>Heating</b>	<b>Cooling</b>
<b>108</b>	<b>16.5</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### 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.

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

### Exposure\*

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

### Provisional\* values

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

## Additional Notes

### Window and glazed door *type and performance*

#### Default\* windows

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

#### Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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-055-50 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-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-055-50 A	Opening 32	2700	3604	fixed	0.0	S	No

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No
2	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
3	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2700	2996	W	0	No
Bedroom 1	2	2700	3977	S	2341	Yes
Bath	1	2700	2490	N	0	No
Bath	1	2700	1777	W	0	No



**NatHERS Certificate**

6 Star Rating as of 11 Jul 2023

Ldry	1	2700	1355	N	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

**Internal wall type**

Wall ID	Wall type	Area (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	7.1	Enclosed	R0.0	Timber
Kitchen/Living	CONPB	17.7	Enclosed	R0.0	Timber

**Ceiling type**

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living	Plasterboard	R2.4	No

**Ceiling penetrations\***

Location	Quantity	Type	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	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



## Explanatory Notes

### About this report

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<b>National Construction Code (NCC) Class</b>	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 <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	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 <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (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.
<b>Roof window</b>	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.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	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.
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<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	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

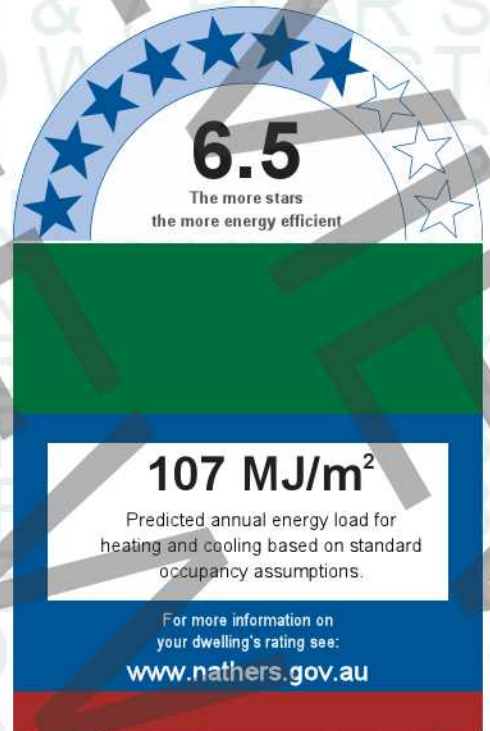
Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

### Property

**Address** 8, 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

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

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>89.1</b>	<b>17.9</b>
<b>MJ/m²</b>	<b>MJ/m²</b>

### 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](http://www.FR5.com.au).



### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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

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

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



Certificate Check

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

Genuine certificate

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

Ceiling penetrations\*

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

Windows

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

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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.

Bedroom 2	CAP-051-06 A	Opening 38	2700	2000	awning	10.0	S	No
Kitchen/Living	CAP-057-13 A	Opening 40	2700	3850	sliding	45.0	W	No

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
2	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No
3	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2700	3388	W	200	No
Bedroom 1	1	2700	3133	S	199	No



## NatHERS Certificate

6.5 Star Rating as 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)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	53.5	

## Floor type

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	8.7	Enclosed	R0.0	Carpet
Bedroom 1	CONPB	2.4	Enclosed	R0.0	Carpet
Bed 1 WIR	CONPB	0.4	Enclosed	R0.0	Carpet
Bed 1 WIR	CONPB	2.2	Enclosed	R0.0	Carpet
Bed 1 Ensuite	CONPB	1.3	Enclosed	R0.0	Tiles
Bed 1 Ensuite	CONPB	3.2	Enclosed	R0.0	Tiles
Bedroom 2	CONPB	7.1	Enclosed	R0.0	Carpet
Bedroom 2	CONPB	3.6	Enclosed	R0.0	Carpet
Bath	CONPB	3.9	Enclosed	R0.0	Tiles
Kitchen/Living	CONPB	32.3	Enclosed	R0.0	Timber

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Plasterboard	R2.4	No
Bed 1 Ensuite	Plasterboard	R2.4	No
Bedroom 2	Plasterboard	R2.4	No

## Ceiling penetrations\*

Location	Quantity	Type	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

\* Refer to glossary.

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



## 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

## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	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.
<b>Ceiling penetrations</b>	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.
<b>Conditioned</b>	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.
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	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.
<b>Exposure category - exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category - open</b>	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).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category - protected</b>	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country.

Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

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<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
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# Nationwide House Energy Rating Scheme

## NatHERS Certificate

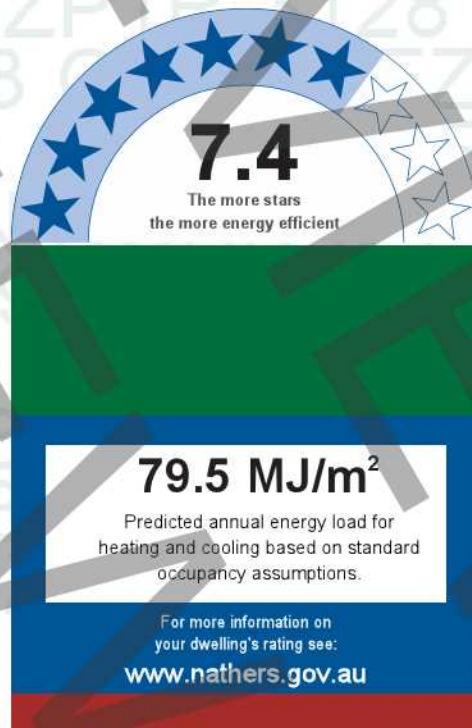
Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

### Property

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**Lot/DP** -  
**NCC Class\*** Class 2  
**Type** New Home

### Plans

**Main plan** -  
**Prepared by** -



### Construction and environment

<b>Assessed floor area (m<sup>2</sup>)*</b>		<b>Exposure type</b>
Conditioned*	48.6	exposed
Unconditioned*	5.5	<b>NatHERS climate zone</b>
Total	54.1	62 Moorabbin Airport
Garage	-	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>64.6</b>	<b>14.9</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

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### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

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Does the installed window meet the substitution tolerances (SHGC and U-value) and window type, of the window shown on this Certificate? Substituted values must be based on the Australian Fenestration Rating Council (AFRC) protocol.

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

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

Provisional\* values

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

Additional Notes

Window and glazed door type and performance

Default\* windows

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading 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.

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
2	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
3	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No
4	CONS	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R0.6)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2700	2997	W	197	Yes
Bedroom 1	2	2700	2425	S	3440	Yes



## NatHERS Certificate

7.4 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 (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	32.9	

## Floor type

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	7.4	Enclosed	R0.0	Carpet
Bedroom 1	CONPB	4.8	Enclosed	R0.0	Carpet
Bath	CONPB	5.5	Enclosed	R0.0	Tiles
Study	CONPB	5.1	Enclosed	R0.0	Timber
Kitchen/Living	CONPB	7.1	Enclosed	R0.0	Timber
Kitchen/Living	CONPB	24.2	Enclosed	R0.0	Timber

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Plasterboard	R2.4	No
Kitchen/Living	Plasterboard	R2.4	No

## 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
--------------	----------------------------	-------------------	------------

\* Refer to glossary.

Slab:Slab - Suspended Slab : 200mm: 200mm	0.0	0.5	Medium
Suspended Slab			



## Explanatory Notes

### About this report

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

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

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<b>Assessed floor area</b>	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.
<b>Ceiling penetrations</b>	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.
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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.

<b>National Construction Code (NCC) Class</b>	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 <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	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 <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (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.
<b>Roof window</b>	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
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<b>Skylight</b> (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.
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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** 10, 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

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure type</b>
Conditioned* 74	exposed
Unconditioned* 3	<b>NatHERS climate zone</b>
Total 77	62 Moorabbin Airport
Garage -	



### Accredited assessor

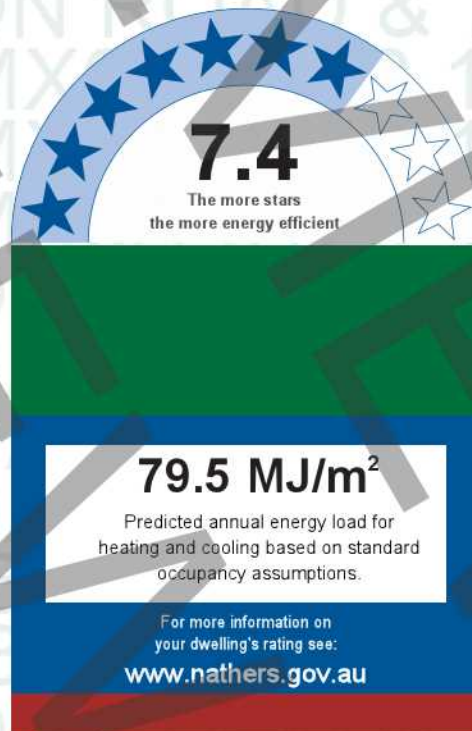
<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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

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

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



### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>66.4</b>	<b>13.1</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### 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](http://www.FR5.com.au).





## Certificate Check

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

### Genuine certificate

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

### Ceiling penetrations\*

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

### Windows

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

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

#### Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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.



Bedroom 2	CAP-057-13 A	Opening 55	2700	2050	sliding	45.0	N	No
Kitchen/Living	CAP-057-13 A	Opening 56	2700	3800	sliding	45.0	W	No

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
2	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No
3	CONS	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R0.6)	No
4	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
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## NatHERS Certificate

7.4 Star Rating as 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	231	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	2608	Yes
Kitchen/Living	3	2700	2863	E	0	No
Kitchen/Living	3	2700	1680	E	0	No
Kitchen/Living	2	2700	2143	N	0	No

## Internal wall type

Wall ID	Wall type	Area (m <sup>2</sup> )	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	65.9	

## Floor type

Location	Construction	Area (m <sup>2</sup> )	Sub-floor ventilation	Added insulation (R-value)	Covering
Bedroom 1	CONPB	13.2	Enclosed	R0.0	Carpet
Bed 1 WIR	CONPB	3.6	Enclosed	R0.0	Carpet
Bed 1 Ensuite	CONPB	4.5	Enclosed	R0.0	Tiles
Bath	CONPB	4.1	Enclosed	R0.0	Tiles
Bedroom 2	CONPB	10.8	Enclosed	R0.0	Carpet
Ldry	CONPB	3	Enclosed	R0.0	Timber
Kitchen/Living	CONPB	37.9	Enclosed	R0.0	Timber

## Ceiling type

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

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	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



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

## Explanatory Notes

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# Nationwide House Energy Rating Scheme

## NatHERS Certificate

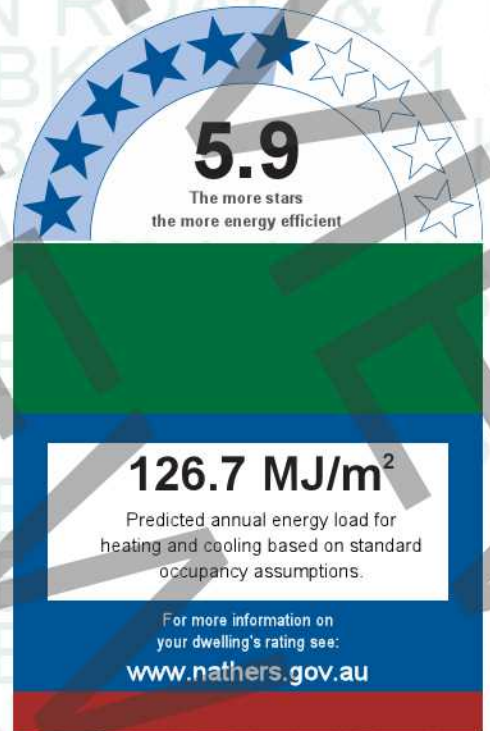
Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

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**Address** 1, 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

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure type</b>
Conditioned* 70	exposed
Unconditioned* 4	<b>NatHERS climate zone</b>
Total 74	62 Moorabbin Airport
Garage -	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
107.2	19.5
MJ/m <sup>2</sup>	MJ/m <sup>2</sup>

### About the rating

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### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

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Additional Notes

Window and glazed door type and performance

Default\* windows

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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.

## NatHERS Certificate

5.9 Star Rating as of 11 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	4309	fixed	0.0	W	No
Kitchen/Living	CAP-057-13 A	Opening 8	2700	2350	sliding	30.0	E	No

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
2	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
3	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
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\* Refer to glossary.



## NatHERS Certificate

5.9 Star Rating as of 11 Jul 2023

Bedroom 1	1	2700	3604	W	163	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	2935	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	E	0	No
Kitchen/Living	1	2700	4090	N	245	No
Kitchen/Living	1	2700	7240	W	157	No
Kitchen/Living	2	2700	2546	E	3795	Yes

## 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

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

## Ceiling penetrations\*

Location	Quantity	Type	Diameter (mm)	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	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 glossary.



## Explanatory Notes

### About this report

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

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

### Accredited assessors

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## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	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.
<b>Ceiling penetrations</b>	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.
<b>Conditioned</b>	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.
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<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
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<b>Exposure category - open</b>	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).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category - protected</b>	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	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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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.

<b>National Construction Code (NCC) Class</b>	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 <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	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 <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (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.
<b>Roof window</b>	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.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	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.
<b>Skylight</b> (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.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	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** 2, 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

<b>Assessed floor area (m<sup>2</sup>)*</b>		<b>Exposure type</b>
Conditioned*	61	exposed
Unconditioned*	3.4	<b>NatHERS climate zone</b>
Total	64.4	62 Moorabbin Airport
Garage	-	



### Accredited assessor

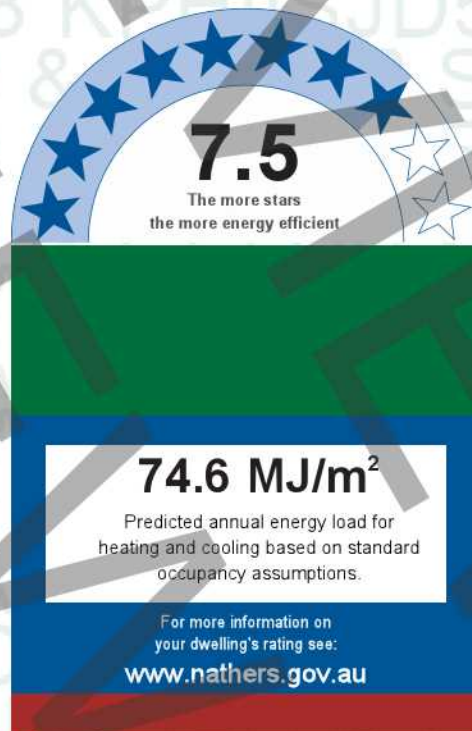
<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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

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

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



### Thermal performance

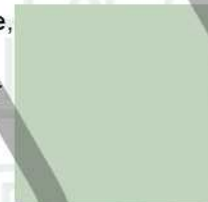
<b>Heating</b>	<b>Cooling</b>
<b>62.5</b>	<b>12.1</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### 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](http://www.FR5.com.au).





Certificate Check

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

Genuine certificate

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

Ceiling penetrations\*

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

Windows

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

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

Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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.



## NatHERS Certificate

7.5 Star Rating as of 11 Jul 2023

Bedroom 1	CAP-055-52 A	Opening 21	2700	2700	fixed	0.0	N	No
Bedroom 2	CAP-051-06 A	Opening 20	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

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m²)	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m²)	Orientation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
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
3	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No

## External wall schedule

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
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\* Refer to glossary.

## NatHERS Certificate

7.5 Star Rating as of 11 Jul 2023

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	E	1715	Yes
Kitchen/Living	3	2700	3584	N	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	11.2	Enclosed	R0.0	Carpet
Bedroom 1	CONPB	6.5	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	CONPB	25.2	Enclosed	R0.0	Timber

## Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Bedroom 1	Plasterboard	R2.4	No

## Ceiling penetrations\*

Location	Quantity	Type	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.



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

## 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** 3, 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

<b>Assessed floor area (m<sup>2</sup>)*</b>	<b>Exposure type</b>
Conditioned* 70	exposed
Unconditioned* 4	<b>NatHERS climate zone</b>
Total 74	62 Moorabbin Airport
Garage -	



### Accredited assessor

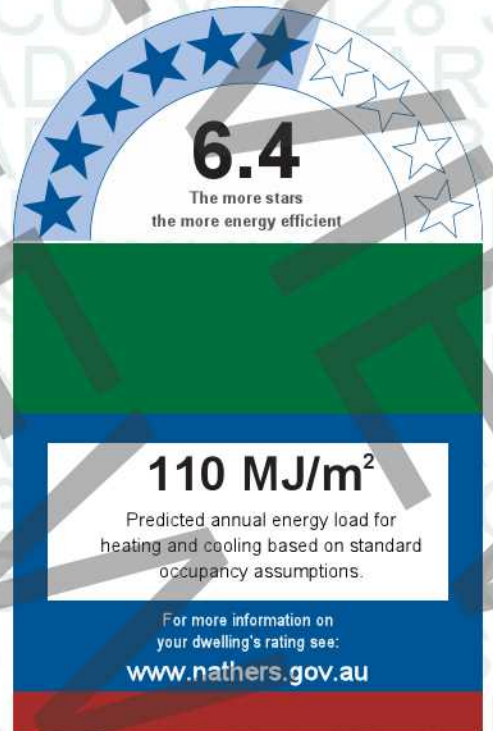
<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

### National Construction Code (NCC) requirements

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

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

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



### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>90.3</b>	<b>19.7</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### 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](http://When using either link, ensure you are visiting www.FR5.com.au).





## Certificate Check

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

### Genuine certificate

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

### Ceiling penetrations\*

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

### Windows

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

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

#### Custom\* windows

Window ID	Window description	Maximum U-value*	SHGC*	Substitution tolerance ranges	
				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
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-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
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-055-52 A	Opening 9	2700	1825	fixed	0.0	N	No
Kitchen/Living	CAP-051-06 A	Opening 12	2700	1825	awning	10.0	N	No

## Roof window type and performance value

### Default\* roof windows

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

### Custom\* roof windows

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

## Roof window schedule

Location	Window ID	Window no.	Opening %	Area (m <sup>2</sup> )	Orientation	Outdoor shade	Indoor shade
No Data Available							

## Skylight type and performance

Skylight ID	Skylight description
No Data Available	

## Skylight schedule

Location	Skylight ID	Skylight No.	Skylight shaft length (mm)	Area (m <sup>2</sup> )	Orient-ation	Outdoor shade	Diffuser	Skylight shaft reflectance
No Data Available								

## External door schedule

Location	Height (mm)	Width (mm)	Opening %	Orientation
No Data Available				

## External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	INTN	0.5	Medium	Glass fibre batt: R1.5 (R1.5)	No
2	FC	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No
3	EXCON	0.5	Medium	Rockwool batt: R2.5 (R2.5)	No



External wall *schedule*

Location	Wall ID	Height (mm)	Width (mm)	Orientation	Horizontal shading feature* maximum projection (mm)	Vertical shading feature (yes/no)
Bedroom 1	1	2700	510	S	0	No
Bedroom 1	2	2700	2487	S	3092	Yes
Bedroom 1	3	2700	3604	E	218	No
Bedroom 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	2700	2546	W	3795	Yes
Kitchen/Living	3	2700	7240	E	212	No
Kitchen/Living	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*

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

Ceiling *penetrations\**

Location	Quantity	Type	Diameter (mm)	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	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



## 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

## Glossary

<b>Annual energy load</b>	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
<b>Assessed floor area</b>	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.
<b>Ceiling penetrations</b>	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.
<b>Conditioned</b>	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.
<b>Custom windows</b>	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
<b>Default windows</b>	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
<b>Entrance door</b>	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.
<b>Exposure category - exposed</b>	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
<b>Exposure category - open</b>	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).
<b>Exposure category - suburban</b>	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
<b>Exposure category - protected</b>	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
<b>Horizontal shading feature</b>	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.

AAOs have specific quality assurance processes in place, and continuing professional development requirements, to maintain a high and consistent standard of assessments across the country.

Non-accredited assessors do not have this level of quality assurance or any ongoing training requirements.

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

### Disclaimer

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

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

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

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

<b>National Construction Code (NCC) Class</b>	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 <a href="http://www.abcb.gov.au">www.abcb.gov.au</a> .
<b>Opening Percentage</b>	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
<b>Provisional value</b>	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 <a href="http://www.nathers.gov.au">www.nathers.gov.au</a>
<b>Reflective wrap</b> (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.
<b>Roof window</b>	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.
<b>Shading device</b>	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
<b>Shading features</b>	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
<b>Solar heat gain coefficient (SHGC)</b>	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.
<b>Skylight</b> (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.
<b>U-value</b>	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
<b>Unconditioned</b>	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
<b>Vertical shading features</b>	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

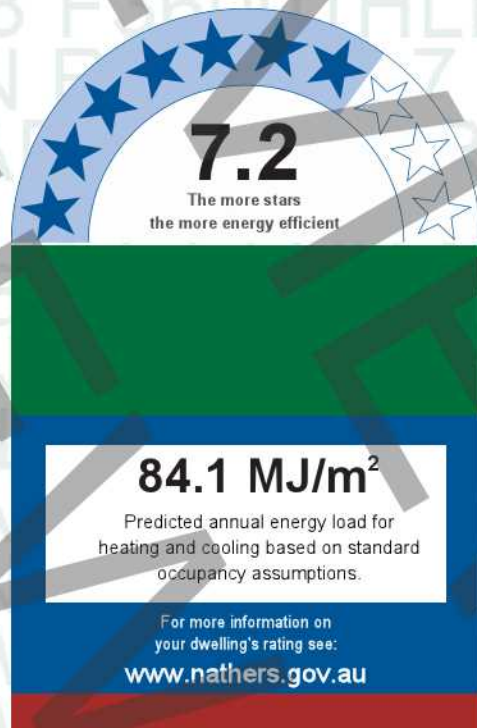
Generated on 11 Jul 2023 using FirstRate5: 5.3.2b (3.21)

### Property

**Address** 4, 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

<b>Assessed floor area (m<sup>2</sup>)*</b>		<b>Exposure type</b>
Conditioned*	46.3	exposed
Unconditioned*	6.4	<b>NatHERS climate zone</b>
Total	52.7	62 Moorabbin Airport
Garage	-	

### Thermal performance

<b>Heating</b>	<b>Cooling</b>
<b>65.3</b>	<b>18.8</b>
<b>MJ/m<sup>2</sup></b>	<b>MJ/m<sup>2</sup></b>

### About the rating

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### Accredited assessor

<b>Name</b>	Margaret Turner
<b>Business name</b>	Ark Resources
<b>Email</b>	mt@arkresources.com.au
<b>Phone</b>	03 9636 0280
<b>Accreditation No.</b>	DMN/11/0194
<b>Assessor Accrediting Organisation</b>	-
<b>Declaration of interest</b>	Declaration completed: no conflicts

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