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# SUSTAINABLE MANAGEMENT PLAN

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GIW environmental SOLUTIONS

## PROPOSED MIXED-USE DEVELOPMENT

98-104 Riversdale, Hawthorn



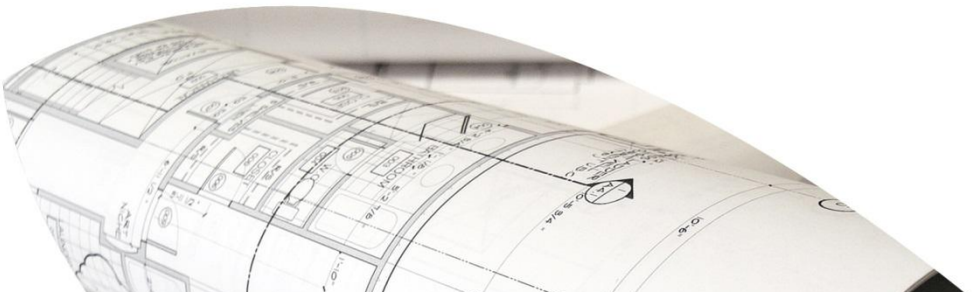
GIW25108
Revision C

Prepared for:
Glenferrie Hill Pty Ltd

20 May 2026

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## Revision History

| Revision Number | Date Issued | Author | Approved | Comments |
|---|---|---|---|---|
| A | 27/04/2026 | CDW | IB | Draft |
| B | 08/05/2026 | CDW | IB | Final |
| C | 20/05/2026 | CDW | IB | Final |

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# 1. Introduction

## Project Information

GIW Environmental Solutions Pty Ltd ("GIW") has been engaged by Glenferrie Hill Pty Ltd to provide Environmentally Sustainable Design (ESD) consulting services for the proposed mixed use development at 98-104 Riversdale Road, Hawthorn.

The proposed development will include 42 apartments and 1 medical centre (within heritage building) constructed over 7 levels plus basement carpark and will consist of the following:

- 16 x 2 bedroom apartments
- 26 x 3 bedroom apartments
- 418m$^2$ medical centre

The site located at 98-104 Riversdale Road, Hawthorn has an approximate surface area of 3,356m$^2$ and is currently the location of three double storey former office/medical suite buildings. Distance from the site to Melbourne CBD is approximately 9.1km.

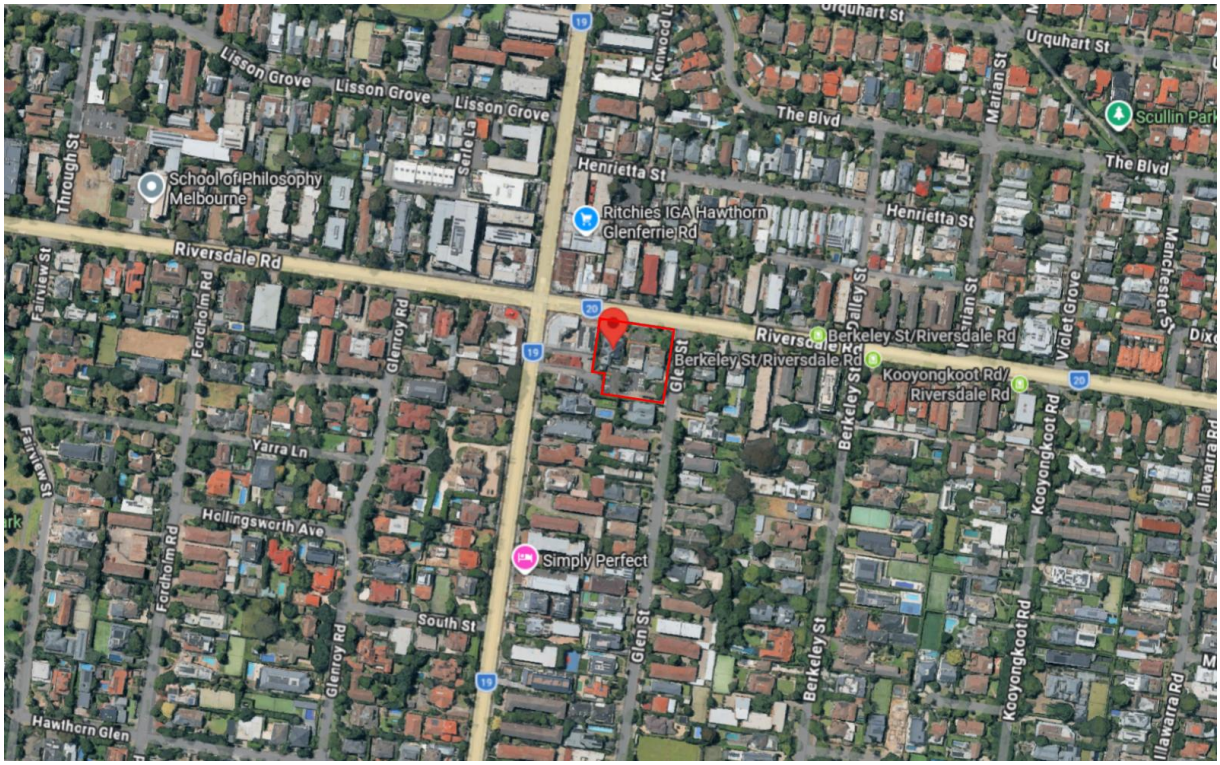


Figure 1 - Pre-existing sites at 98-104 Riversdale Road, Hawthorn.

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## Statutory Requirements

This Sustainable Management Plan (SMP) has been prepared to inform City of Boroondara of the proposed development's sustainability credentials and performance targets. The project team is committed to achieving a building solution which exceeds City of Boroondara's planning requirements. The following Planning Scheme requirements are applicable to this project:

| Planning Scheme Clause | Application Requirement | Example Tools |
|---|---|---|
| City of Boroondara sustainability objectives and obligations. | Sustainability Management Plan (SMP) | BESS<br>Green Star<br>MUSIC<br>STORM / Blue Factor |
| City of Boroondara Planning Scheme - Clause 53.18 Stormwater Management in Urban Areas | Meet the current best practice performance objectives for stormwater quality as contained in the *Urban Stormwater - Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999). | MUSIC<br>STORM / Blue Factor |
| City of Boroondara Planning Scheme - Clause 15.01-2S | N/A | N/A |
| City of Boroondara Planning Scheme - Clause 58.03-1 | To ensure the orientation and layout of development reduce fossil fuel energy use and make appropriate use of daylight and solar energy. | BESS<br>First Rate5 |

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## Built Environment Sustainability Scorecard (BESS)

The proposed commercial development will be assessed against the Built Environment Sustainability Scorecard (BESS) guidelines. The BESS tool addresses eight key environmental categories as follows:




Figure 2 - BESS Environmental Categories (www.bess.net.au)

All ESD measures described under the eight key environmental categories are to be suitably incorporated into relevant project documentation at the appropriate project phase.

## Responsibilities & Implementation

Glenferrie Hill Pty Ltd will be responsible for the suitable implementation of the requirements of this report throughout the design and development phases. Should the development be sold the responsibility will pass to the new owner. At such time as a builder is novated or a building contract is put in place the builder will be responsible for implementation during the construction phase. At occupancy, the Owners Corporation, occupants and / or tenants will be responsible for the correct use of installed equipment and building systems in line with the provided Building User's Guide.

## Sources of Information

The following 'Sources of Information' have been used to guide the design solutions:

- Tristan Wong Architecture – Project No. 25014 – Drawing Set: Issued for Town Planning Rev 1 13/05/26
- Municipal Association of Victoria - SDAPP Explained; Building Design for a Sustainable Future
- Built Environment Sustainability Scorecard (BESS)
- CSIRO 1999, Urban Stormwater – Best Practise Environmental Management Guidelines

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# 2. ESD Summary

The proposed mixed-use development at 98-104 Riversdale Road, Hawthorn will implement the following ESD initiatives:

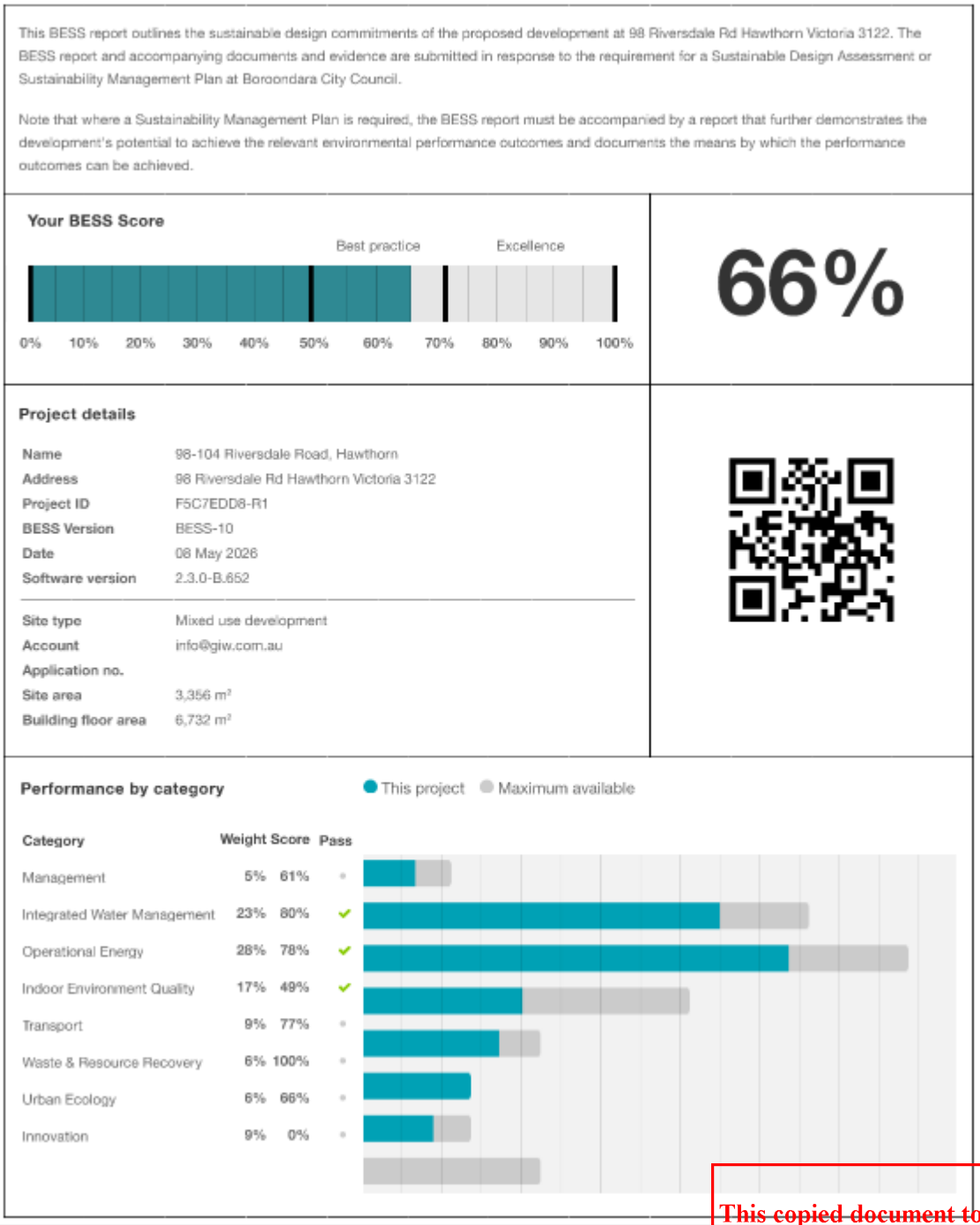
1. The project achieves a total BESS score of 66% with no mandatory category (IEQ, Operational Energy, IWM) below 50%.
2. 52% (21 out of 42) of the development's apartments are naturally cross-ventilated.
3. The in-built BESS daylight calculator has been utilised to demonstrate compliance under BESS – IEQ 1.1 and 1.2.
4. The non-residential areas are targeting a 2% DF to 33% of the nominated area.
5. 45% (19 out of 42) of apartments achieve at least 3 hours of sunlight.
6. The development is provided with a comprehensive shading strategy.
7. The development is to achieve a 7.5 Star average NatHERS Energy Rating result.
8. The non-residential areas aim to achieve the Section J DTS requirements (BCA Section J 2022).
9. The development is to utilise a heat pump hot water system.
10. A 10kW Solar PV system is to be located on the roof of the proposed development.
11. Individual cold and electricity meters will be provided to the apartments, communal areas and medical centre.
12. Water efficient fittings and fixtures are applied throughout.
13. A clean 16,000 litre rainwater tank will harvest rainwater from the Level 5 roof and a dirty 12,000 litre rainwater tank will harvest rainwater from the Level 1, 2, 3, & 4 POS. The clean tank will be connected to Lower Ground and Lower Ground WCs and the dirty tank will be connected to landscape irrigation.
14. A Blue Factor rating of 106% is achieved.
15. Landscape irrigation demand will be connected to the rainwater tank.
16. In total 42 bicycle spaces are to be provided for residents.
17. In total 10 bicycle spaces are to be provided for residential visitors.
18. In total 2 bicycle spaces are to be provided for employees & 2 bicycle spaces are to be provided for non-residential visitors.
19. The medical office is provided with an end of trip facility including min. 1 showers, 2 lockers and changing facilities.
20. 199m2 of communal space will be provided at ground floor.

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# 3. BESS Performance

The project achieves a total BESS score of 66% with no mandatory category (IEQ, Operational Energy, IWM) below 50%. This figure represents a percentage improvement over a benchmark project. A score of 50% and higher equates to 'best practice' and is an effective pass of the BESS tool. A score of 70% and higher equates to BESS 'excellence' and exists as a higher benchmark in the tool.



This BESS report outlines the sustainable design commitments of the proposed development at 98 Riversdale Rd Hawthorn Victoria 3122. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Boroondara City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

**Your BESS Score**

Best practice Excellence

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

**66%**

**Project details**

| | |
|---|---|
| Name | 98-104 Riversdale Road, Hawthorn |
| Address | 98 Riversdale Rd Hawthorn Victoria 3122 |
| Project ID | F5C7EDD8-R1 |
| BESS Version | BESS-10 |
| Date | 08 May 2026 |
| Software version | 2.3.0-B.652 |
| Site type | Mixed use development |
| Account | info@giw.com.au |
| Application no. | |
| Site area | 3,356 m² |
| Building floor area | 6,732 m² |

**Performance by category**

This project Maximum available

| Category | Weight | Score | Pass |
|---|---|---|---|
| Management | 5% | 61% | |
| Integrated Water Management | 23% | 80% | ✓ |
| Operational Energy | 28% | 78% | ✓ |
| Indoor Environment Quality | 17% | 49% | ✓ |
| Transport | 9% | 77% | |
| Waste & Resource Recovery | 6% | 100% | |
| Urban Ecology | 6% | 66% | |
| Innovation | 9% | 0% | |

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# 4. ESD Assessment

## Management

Council ESD objectives:

- To encourage a holistic and integrated design and construction process and ongoing high performance.

### Council Best Practice Standard

| Criteria | | Construction and Building Management Actions |
|---|---|---|
| Pre-Application Meeting | To ensure appropriate sustainable design principles and strategies are considered from the preliminary design stage of each development. | GIW has been actively involved in the preliminary design stage, but has not been involved in a pre-application meeting with Council. |
| Metering | To provide building users with information that allows monitoring of energy and water consumption | Electricity and cold water metering is to be provided to each individual apartment and the medical centre.<br>Lighting and general power to common areas is to be separately metered to quantify energy used for common areas spaces.<br>Additionally, the main electrical switchboard to contain at least two empty three-phase circuit breaker slots and four DIN rail spaces labelled to indicate the use of each space for a battery system. |
| Building User's Guide | To encourage and recognise initiatives that will help building users to use the building more efficiently. | A Building User's Guide will be provided to all occupants explaining the correct use of installed equipment and building systems. This shall cover at a minimum:<br>• Energy and Environmental Strategy<br>• Monitoring and Targeting<br>• Building Services<br>• Transport Facilities<br>• Materials and Waste Policy<br>• Expansion/Re-fit Considerations<br>• References and Further Information |

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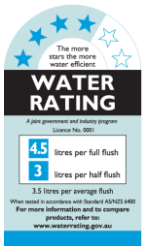
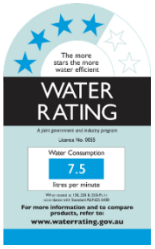
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## Integrated Water Management

Council ESD objectives:

- To reduce total operating potable water.
- To encourage the appropriate use of alternative water sources (including greywater, rainwater and stormwater).
- To incorporate best practice water sensitive urban design to improve the quality of stormwater runoff and reduce impacts on water systems and water bodies.

## Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| Stormwater Treatment | To minimise negative environmental impacts of stormwater runoff and maximise onsite re-use of stormwater. | The Blue Factor tool has been applied to determine performance relative to Best Practice Environmental Management Guidelines (Victoria Stormwater Committee, 1999). As per City of Boroondara Planning Scheme - Clause 53.18 Stormwater Management in Urban Areas, the development is required to achieve a Blue Factor rating of 100% or greater.<br><br>A Blue Factor rating of 106% is achieved via the following:<br>• Rainwater is to be collected from the Level 5 roof and directed into a 16,000 litre rainwater tank. Lower Ground and Ground Floor apartment WC's are to be connected to the rainwater tank.<br>• Rainwater is to be collected from the Level 1, 2, 3, & 4 POS and directed into a 12,000 litre rainwater tank. Landscape irrigation is to be connected to the rainwater tank.<br><br>Refer Appendix A – WSUD Response. |
| Potable Water Reduction | To reduce total potable water use due through the use of efficient fixtures, appliances, and the use of rainwater. | WELS 4 Star - Toilets<br>  <br>WELS 5 Star -Kitchen Taps<br>  <br>WELS 6 Star - Bathroom Taps<br>  <br>WELS 4 Star - Showerhead<br>  <br>WELS 5 Star -Dishwasher<br>  |
| Rainwater Collection & Reuse | | A clean 16,000 litre rainwater tank will harvest rainwater from the Level 5 roof and a dirty 12,000 litre rainwater tank will harvest rainwater from the Level 1, 2, 3, & 4 POS. The clean tank will be connected to Lower Ground and Lower Ground WCs and |

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## Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| | | the dirty tank will be connected to landscape irrigation. It is estimated that this will save more than 356.9kL of potable water every year and meet 21.8% of the demand in these areas.<br>Stormwater drainage mechanism is to be determined by the hydraulics services engineer at the design development phase.<br>Refer Appendix A – WSUD Response |
| Landscape Irrigation | To ensure the efficient use of water and to reduce total operating potable water use through encouraging water efficient landscape design. | Landscape irrigation demand will be connected to the rainwater tank. |
| Building System Water Use Reduction | Ensure the efficient use of water, to reduce total operating potable water use and to encourage the appropriate use of alternative water sources for cooling and fire testing systems. | >80% of fire test water (e.g. hydrant pump test water or SCV annubar test) is to be reused on site, either within the fire test system itself, irrigation, toilet flushing, or other non-potable uses. Final coordination and confirmation of these options will occur with the fire engineer at a later stage.<br>The proposed development is to incorporate air-cooled HVAC systems for both the residential and non-residential areas within the development. |

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## Operational Energy

Council ESD objectives:

- To reduce both energy use and energy peak demand through design measures.

### Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| Thermal Performance Rating - Residential | To reduce energy needed to achieve thermal comfort in summer and winter - improving comfort, reducing greenhouse gas emissions, energy consumption, and maintenance costs. | The National Construction Code (NCC) Class 2 – Sole Occupancy Unit(s) residential building component is to be designed in accordance with NCC Section J (2022) NatHERS requirements. The apartments must achieve an average 7.5 Star rating, with no unit achieving below 6.0 Stars.<br>Further to this the development will need to comply with the following heating and cooling load limits: |

| Climate Zone | Heating load limits (MJ/m2) | Cooling load limits (MJ/m2) |
|---|---|---|
| 62 Moorabbin | Maximum: 91 | Maximum: 21 (BADS) |

The apartments are currently achieving a 7.5 Star average. The below sample ratings demonstrate the developments ability to achieve these requirements. Refer Appendix B for Preliminary FirstRate5 Certificates.

| Apartment No. | ACE Total MJ/M2 | ACE Heating MJ/M2 | ACE Cooling MJ/M2 | ACE NCFA | Star Rating |
|---|---|---|---|---|---|
| LG03 | 58.9 | 46.1 | 12.8 | 177.8 | 8.0 |
| LG04 | 90.0 | 74.4 | 15.6 | 106.5 | 6.8 |
| 1.08 | 43.3 | 26.2 | 17.1 | 87.3 | 8.6 |
| 2.03 | 55.3 | 41.6 | 13.7 | 93.4 | 8.2 |
| 2.06 | 73.1 | 61.4 | 11.7 | 68.9 | 7.4 |
| 3.03 | 68.7 | 51.6 | 17.1 | 153.6 | 7.6 |
| 5.01 | 94.8 | 79.8 | 15.0 | 192.6 | 6.7 |
| 5.02 | 96.0 | 75.2 | 20.8 | 157.5 | 6.6 |
| **Average** | **72.5** | **57.0** | **15.5** | **129.7** | **7.5** |

*Apartments are assessed using FirstRate5 v5.5.5

Construction assumptions for preliminary FirstRate5 ratings are

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## Council Best Practice Standard

| Criteria | Development Provision |
|---|---|

listed below. Note, these assumptions are based on the sample of apartments assessed and may vary throughout the development. These assumptions are not to be relied upon for any other purpose beyond Town Planning assessment.

| Element | Material | Thermal Performance Value |
|---|---|---|
| Floor - CSOG | Concrete | R1.5 |
| Floor – Carpark below | Concrete | R3.65 |
| Floor – Exposed above / below | Concrete | R2.3 |
| External Walls | Concrete | R2.5 |
| Internal Walls – Intertenancy | Plasterboard | 2x R1.8 |
| Internal Walls – Core/Corridor | Concrete / Plasterboard | R1.8 |
| Roof – Exposed above | Concrete | R2.3 |
| Roof | Concrete | R3.65 |
| Fixed Windows | Aluminium framed, Double glazed, Argon filled, Low-E, Clear | Total System:<br>– U-Value: 2.71<br>– SHGC: 0.58 |
| Sliding Doors | Aluminium framed, Double glazed, Argon filled, Low-E, Clear | Total System:<br>– U-Value: 3.19<br>– SHGC: 0.48 |
| Awning Windows | Aluminium framed, Double glazed, Argon filled, Low-E, Clear | Total System:<br>– U-Value: 4.42<br>– SHGC: 0.4 |
| Fixed Windows | Aluminium thermally broken framed, Double glazed, Argon filled, Low-E, Tinted | Total System:<br>– U-Value: 2.08<br>– SHGC: 0.26 |

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## Council Best Practice Standard

| Criteria | | Development Provision | | |
|---|---|---|---|---|
| | | Sliding Doors | Aluminium thermally broken framed, Double glazed, Argon filled, Low-E, Tinted | Total System:<br>– U-Value: 2.74<br>– SHGC: 0.25 |
| | | Awning Windows | Aluminium thermally broken framed, Double glazed, Argon filled, Low-E, Tinted | Total System:<br>– U-Value: 2.24<br>– SHGC: 0.23 |
| Thermal Performance Rating – Non-Residential | To reduce energy needed to achieve thermal comfort in summer and winter - improving comfort, reducing greenhouse gas emissions, energy consumption, and maintenance costs. | The non-residential areas aim to achieve the Section J DTS requirements (BCA Section J 2022) in accordance with below:<br>o Floors: total system R-value R2.0.<br>o Roof Insulation: total system R-value R3.2.<br>o Walls and glazing are to meet the J4D6 Façade calculator.<br>Refer Appendix C for Part J4D6 Façade Calculation. | | |
| Electrification | To support the transition to renewable energy sources. | The development will be all-electric with no gas connection. | | |
| HVAC System | To ensure the efficient use of energy and to reduce consumption of electricity. | Inverter split system units are to be installed and sized to maintain conditions of the habitable areas. Heating and cooling systems are to have an Energy Efficiency Ratios (EER) not less than 85% of the EER of the most efficient equivalent unit available (type & capacity).<br>VRV / VRF systems with a COP of 3.4 are to be installed to the non-residential areas. | | |
| Hot Water System | To ensure the efficient use of energy and to reduce consumption and greenhouse | The development is to utilise a heat pump hot water system with a COP ≥3.5. | | |

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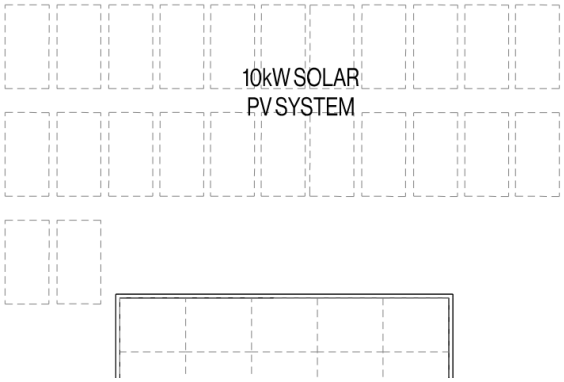
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| Criteria | | Development Provision |
|---|---|---|
| | emissions from water heating. | |
| Car Park Ventilation | To ensure the efficient use of energy, reduce total operating greenhouse gas emissions and to reduce energy peak demand. | Carpark ventilation fans are driven by a VSD motor connected to CO sensors within the carpark. The inclusion of CO sensor control will allow the ventilation fans to ramp down when the car park is unoccupied. The system is to be designed in accordance with AS1668.2.<br><br>The mechanical services engineer is responsible for the design and specification of the system. The contractor is to procure and install the specified system.<br><br>Maintenance requirements of the CO sensor system are to be included in the O&M manual. |
| Clothes Drying | Ensure the efficient use of energy and to reduce energy consumption and greenhouse emissions associated with clothes drying | Nil |
| Internal Lighting - Residential | To ensure the efficient use of energy, to reduce energy consumption, greenhouse emissions associated with artificial lighting, and to reduce energy peak demand. | The maximum illumination power density (W/sqm) is at least 20% lower than NCC 2022 requirements.<br><br>Lighting power density shall be as follows:<br>• Dwellings: No greater than average 4W/m$^2$<br>• POS: No greater than average 3.2W/m$^2$<br>• Back of house and indoor car parks: No greater than average 1.6W/m$^2$<br><br>All common area, external and carpark lighting is to be controlled with daylight, motion sensors or timers (whichever is deemed appropriate). |
| Internal Lighting – Non-Residential | To ensure the efficient use of energy, to reduce energy consumption, greenhouse | The maximum illumination power density (W/m2) in the non-residential areas meets the requirements of Table J7D3a of the NCC 2022 Section J.<br><br>Lighting power density shall be as follows:<br>• Medical centre: No greater than average 4.5W/m$^2$ |

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| Criteria | | Development Provision |
|---|---|---|
| | emissions associated with artificial lighting, and to reduce energy peak demand. | |
| Renewable Energy Systems - Solar | To encourage on-site renewable energy generation and reduce greenhouse emissions. | A 10kW Solar PV system is to be located on the roof of the proposed development. The system is expected to generate approximately 13,078kWh.<br>  <br>Location Solar PV System<br>Refer Appendix D – Renewable Energy |

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## Indoor Environment Quality

Council ESD objectives:

- To achieve a healthy indoor environment quality.
- To reduce indoor air pollutants by encouraging use of non-toxic materials.
- Minimise noise levels and noise transfer within and between buildings and associated external areas.

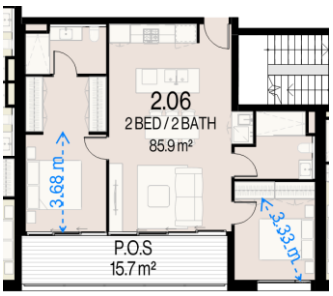
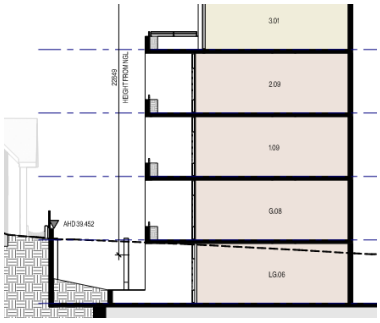
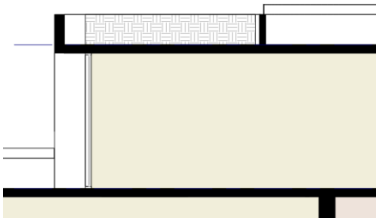
### Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| Daylight Access - Residential | To provide a high level of amenity and energy efficiency through design for natural light. | The in-built BESS daylight calculator has been utilised to demonstrate compliance under BESS – IEQ 1.1 and 1.2. |
| Winter Sunlight | To provide a high level of amenity and reduce need for artificial heating in winter. | 45% (19 out of 42) of apartments achieve at least 3 hours of sunlight. |
| Daylight Access – Non-Residential | To provide a high level of amenity and energy efficiency through design for natural light. | The non-residential areas are targeting a 2% DF to 33% of the nominated area. |
| Minimal Internal Bedrooms | 90% of bedrooms have an external window. | NIL internal bedrooms. |
| Effective Natural Ventilation | To provide fresh air and passive cooling opportunities. | 52% (21 out of 42) of the development's apartments are naturally cross-ventilated. Apartments are provided with windows on opposite or adjacent facades or are effective single sided ventilated. |

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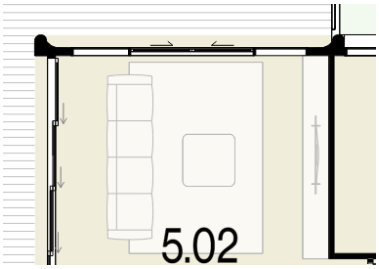
## Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| | |  <br>Typical natural cross-ventilated apartment<br>  <br>Typical single sided ventilated bedroom |
| Ventilation – Non-Residential | To provide fresh air and passive cooling opportunities. | Outdoor air rate for the commercial areas is to be 50% increased compared to AS 1668:2012.<br>This is to be included in the mechanical design and specifications. |
| Thermal Comfort | To provide comfortable indoor spaces and reduce energy needed for heating and cooling. | The development is provided with a comprehensive shading strategy:<br>  <br>Inset balconies provide shading to Lower Ground-Level 2<br>  <br>Extended roof line provides shading to Apartment 304 |

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## Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| | |  Feature columns provide vertical shading to the north, west and east glazing at level 5. |
| Thermal Comfort – Non-Residential | To provide comfortable indoor spaces and reduce energy needed for heating and cooling. | The development is provided with a comprehensive shading strategy:  A veranda provides shading to the ground floor north and west facing windows. The eaves of the pitched roof provides shading to all windows. |
| Air Quality – Non-Residential | All paints and adhesives meet the maximum total indoor pollutant emission limits. | All internally applied paints adhesives and sealants are to have a low or ultra-low VOC content in line with Green Star Buildings V1 Credit 13. |
| | All carpet meets the maximum total indoor pollutant emission limits. | All internally applied carpets are to have a low VOC content in line with Green Star Buildings V1 Credit 13. |

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## Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| | All engineered wood meets the maximum total indoor pollutant emission limits. | All internally applied engineered wood products are to have low formaldehyde levels in line with Green Star Buildings V1 Credit 13. |

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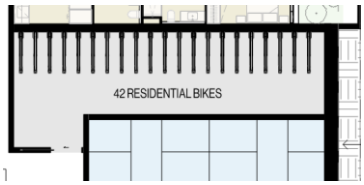
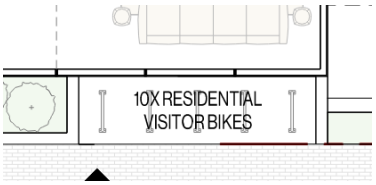
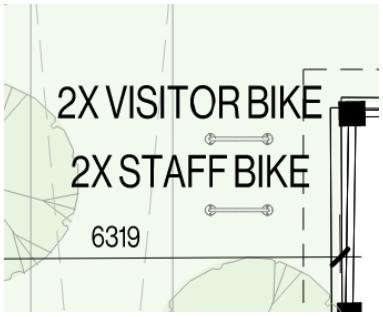
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## Transport

Council ESD objectives:

- To promote the use of walking, cycling and public transport, in that order; and minimise car dependency.
- To promote the use of low emissions vehicle technologies and supporting infrastructure.

### Council Best Practice Standard

| Criteria | | Development Provision | |
|---|---|---|---|
| Bicycle Parking – Residential & Residential Visitors | To encourage and recognise initiatives that facilitate cycling. |  In total 42 bicycle spaces are to be provided for residents. This will provide a ratio of approximately 1 resident bicycle space for every apartment. |  In total 10 bicycle spaces are to be provided for residential visitors. This will provide a ratio of approximately 1 visitor bicycle space for every 5 apartments. |
| Bicycle Parking – Non-Residential & Non-Residential Visitors | To encourage and recognise initiatives that facilitate cycling. | In total 2 bicycle spaces are to be provided for employees. This represents a 100% increase over the planning scheme requirements. |  In total 2 bicycle spaces are to be provided for non-residential visitors. This represents a 50% increase over the planning scheme requirements. |
| End of Trip | To minimise car | The medical office is provided with an end of trip facility. | |

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## Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| Facilities – Non-Residential | dependency and to ensure that the built environment is designed to promote the use of public transport, walking and cycling. | including min. 1 showers, 2 lockers and changing facilities. |
| Electric Vehicle Infrastructure | To minimise car dependency and to ensure that the built environment is designed to promote the use of public transport, walking and cycling. | One charging point for electrical vehicles is integrated in the proposed development.<br>Future infrastructure for electrical charging points is incorporated in the services design including dedicated electrical distribution boards (DB-EV) for EV charging on every floor of the parking lot per NCC 2022 Table J9D4.<br>Each DB-EV must be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand.<br>When associated with a Class 2 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00 pm to 7:00 am daily and Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 9:00 am to 5:00 pm daily.<br>Additionally, each DB-EV must be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in 100% of the car parking spaces associated with a Class 2 building and 10% of car parking spaces associated with a Class 5 or 6 building. |
| Car Share Scheme | To minimise car dependency and to ensure that the built environment is designed to promote the use of public transport, walking and cycling. | Nil |
| Motorbikes / | To minimise car | Nil |

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ADVERTISED PLAN

## Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| Mopeds | dependency and to ensure that the built environment is designed to promote the use of public transport, walking and cycling. | |

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## Materials

ESD objectives:

- To encourage the use of low embodied energy materials.
- To encourage use of recycled and reusable materials in building construction and undertake adaptive reuse of buildings, where practical.

### Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| Embodied Energy | Limited use of high embodied energy metals and materials, especially in a design with intended high churn (e.g. retail) | The design will seek to limit the use of high embodied energy metal finishes.<br>Concrete mixes used within the project will seek to reduce Portland cement and aggregate content where deemed appropriate by the structural engineer. |
| Structural and Reinforcing Steel | Commitment to source structural and reinforcing steel from a responsible steel maker | The building's steel (by mass) is to be sourced from a Responsible Steel Maker with:<br>• a currently valid and certified ISO 14001 Environmental Management System (EMS) in place; and<br>• is a member of the World Steel Association's (WSA) Climate Action Programme (CAP) |
| Sustainable Timber | Commitment to source timber from sustainably managed source, with proof of audit trail. | Where timber is to be used, such timbers are to accord with the GBCA's 'Essential' criteria for forest certification. This may include FSC and / or PEFC Certification which are both internationally recognised schemes ensuring that timber is sourced from sustainable sources. Alternatively, recycled timber will be used. |
| PVC | Commitment to source best practice PVC products | Permanent formwork, pipes, flooring, blinds and cables in the project will seek to comply with the following:<br>• Meet the GBCA's Best Practice Guidelines for PVC. or;<br>• The supplier holds a valid ISO140001 certification. |
| Sustainable Products | Commitment to source products that meet the transparency and sustainability requirements | The project will incorporate products that meet the transparency and sustainability requirements where deemed appropriate. This includes the following: reused products, recycled content products, environmental product declarations, third party certified and stewardship programs. |

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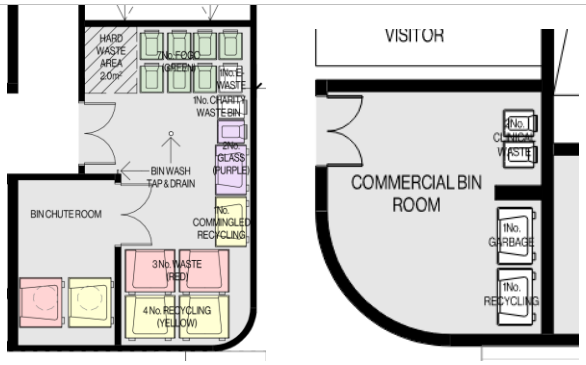
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## Waste & Resource Recovery

Council ESD objectives:

- To promote waste avoidance, reuse and recycling during the design, construction and operation stages of development.
- To encourage use of durable and reuseable building materials.
- To ensure sufficient space is allocated for future change in waste management needs, including (where possible) composting and green waste facilities.

### Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| Building Re-use | To ensure waste avoidance, reuse and recycling during the design. | At least 30% of the existing structure is re-used. |
| Construction and Demolition Waste | To reduce construction waste going to landfill | At least 80% of the waste generated during construction and demolition has been diverted from landfill. |
| Food & Garden Waste | To ensure waste avoidance, reuse and recycling during the operational life of the building. | Green waste storage is provided in the Basement 01 bin room. |
| Convenience of Recycling | To ensure waste avoidance, reuse and recycling during the operational life of the building. |  <br>Separate general, recycling, glass and organic waste storage will be provided at Basement 01 bin rooms.<br><br>Each tenancy is to be provided with separate general, recycling and food and organics waste bins. This requirement is to be included in the owners corporation rules or lease agreement. |

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## Council Best Practice Standard

| Criteria | Development Provision |
|---|---|
| | Kitchen joinery for the residential units is to provide appropriate spatial allowance for food and organics, general and recycling waste collection. |

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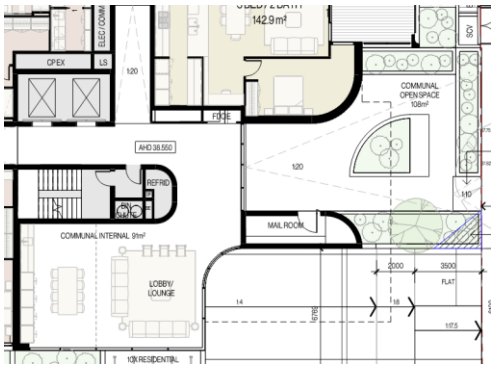
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## Urban Ecology

Council ESD objectives:

- To protect and enhance biodiversity.
- To reduce urban heat island effects.
- To encourage the provision of space for productive gardens, particularly in larger residential developments.

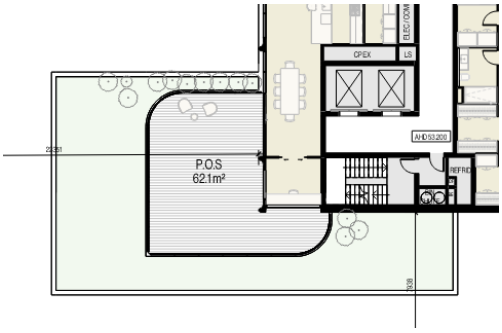
### Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| Communal Space | To encourage and recognise initiatives that facilitate interaction between building occupants. | 199m$^2$ of communal space will be provided at ground floor. Communal space will include the following amenities: lobby/lounge and landscaped entry with sitting area.<br>  <br><br>Communal space will be provided at the Ground Floor. |
| Vegetation | To encourage and recognise the use of vegetation and landscaping within and around developments. | Planter boxes are to be located on POS<br>Landscaped area is to be located Lower Ground and Ground Floor<br><br>The total area of vegetation is 42% of the site area. |
| Green Walls / Roof | To encourage the appropriate use of green roofs, walls and facades to mitigate the impact of the urban heat island effect. | The proposed development will incorporate green roofs throughout. |

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## Council Best Practice Standard

| Criteria | | Development Provision |
|---|---|---|
| | |  <br>Green roof location. |
| Private Open Space - Balcony / Courtyard Ecology | To encourage plants in a healthy ecological context to be grown on balconies and in courtyards. | Nil |
| Food Production - Residential | To encourage the production of fresh food on-site. | Nil |
| Heat Island Effect | To reduce the contribution of the project site to the 'heat island effect | Roofs are to have a Solar Reflectance Index (SRI) of minimum 60. |

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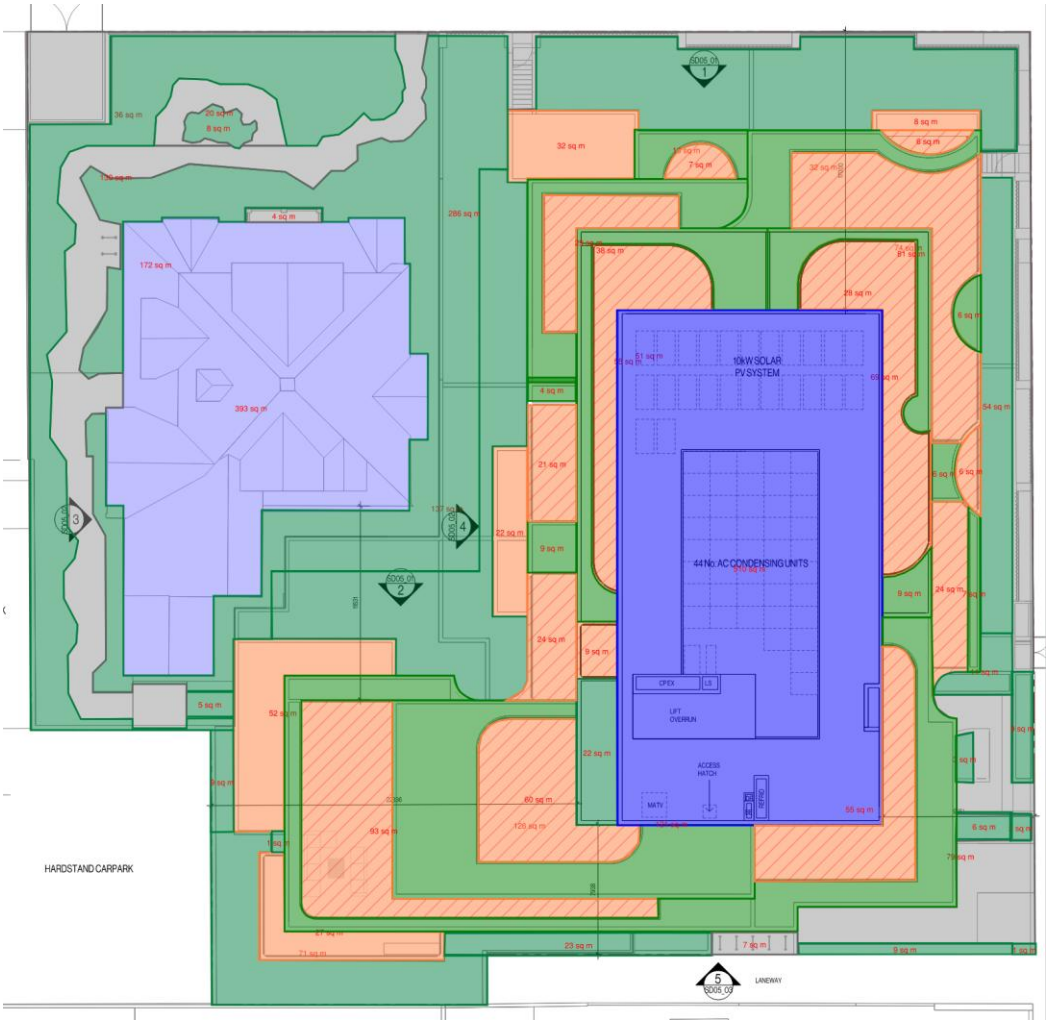
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# Appendices

## Appendix A: WSUD Response

### Site layout Plan

The following architectural mark-up illustrates the rainwater collection and impervious areas of the proposed development site.




Legend

| Description | Quantity | Unit |
|---|---|---|
| Apartment Roof | 510 | sq m |
| Impermeable Ground | 350 | sq m |
| Landscaping | 972 | sq m |
| Med Centre Roof excl. from assessment | 393 | sq m |
| POS | 141 | sq m |
| POS to tank | 539 | sq m |
| Roof Garden | 451 | sq m |

Figure 3- Mark-up of water catchment and impervious areas

ADVERTISED PLAN

## Blue Factor Rating

A Blue Factor rating of ≥100% can be achieved by implementing the following initiatives:

- Rainwater collection off the Level 5 roof is directed into a 16,000 litre rainwater tank connected to Lower Ground and Ground Floor apartment WC's.
- Rainwater collection off the Level 1, 2, 3 & 4 POS is directed into a 12,000 litre rainwater tank connected to landscape irrigation.

Note: the existing heritage building has been excluded from the assessment in both the total site area and input areas.

Blue Factor was developed by Microburst Software with support from DEECA. as a method of simplifying the analysis of stormwater treatment methods. The Blue Factor Calculator displays the amount of treatment that is required to meet best practice targets, using WSUD treatment measures.

The best practice standards have been set out in the Urban Stormwater Best Practice Environmental Management Guidelines (Victoria Stormwater Committee, 1999) for reduction in total suspended solids (TSS), total phosphorus (TP) and total nitrogen (TN) loads.

The Blue Factor Result is provided below:

Project # 790FD4E6
V2: 98-104 Riversdale Road, Hawthorn - Final SMP Rev C
Gary Wertheimer - info@giw.com.au
98/104 Riversdale Rd, Hawthorn VIC 3122, Australia
20 May 2026 7:20 a.m.

BLUE FACTOR®

### 98-104 Riversdale Road, Hawthorn - Final SMP Rev C

The proposed stormwater treatments provide 'deemed to comply' compliance with the minimum planning requirement for total nitrogen but does not comply with all the relevant objectives for management of stormwater flows on-site.

106% SCORE

### Project details

| | |
|---|---|
| Name | V2: 98-104 Riversdale Road, Hawthorn - Final SMP Rev C |
| Project ID | 790FD4E6 |
| Street address | 98/104 Riversdale Rd, Hawthorn VIC 3122, Australia |
| Municipality | Boroondara |
| Site area | 2963 $m^2$ |
| Planning Number | |

### Flow and pollutant load reductions

| Item | Result | Target | |
|---|---|---|---|
| Mean annual runoff volume harvested or evapotranspired (%) | 44% | >26% | ✓ |
| Mean annual runoff volume infiltrated or filtered (%) | 0% | >10% | ✗ |
| Total suspended solids (%) | 58% | >80% | ✗ |
| Total phosphorus (%) | 54% | >41% | ✓ |
| Total nitrogen (%) | 47% | >45% | ✓ |
| Total gross pollutants (%) | 67% | >70% | ✗ |

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## WSUD Strategy

The development will include the provision of a 16,000 and 12,000 litre rainwater tank and associated pump in the basement garage. The clean rainwater tank is to be connected to Lower Ground and Ground Floor WC's and the dirty tank is to be connected to the irrigation system.

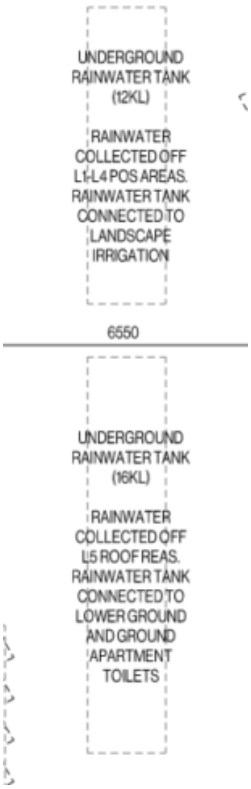



Figure 4 – Location Rainwater Tank

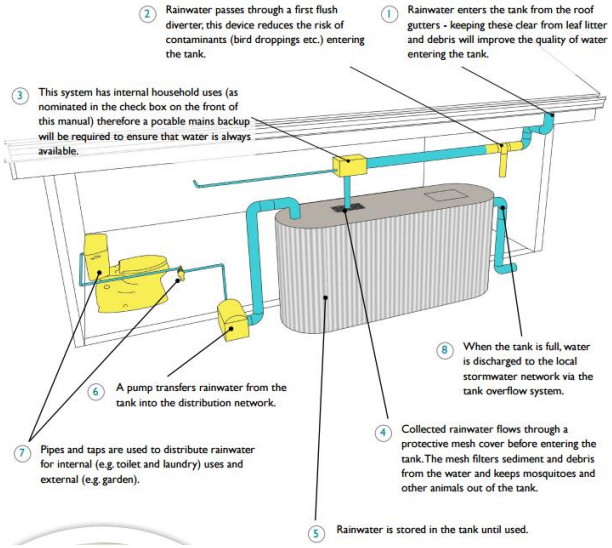



Figure 5 – Cross-section Tank (City of Port Phillip)

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## Rainwater Reuse

### Inputs

| | |
|---|---|
| Catchment Area | 1049 sqm |
| Number of Bedrooms | 35 |
| Bin Washout | No |
| Irrigation Area | 1412 sqm |
| Tank Capacity | 28,000 Litre |

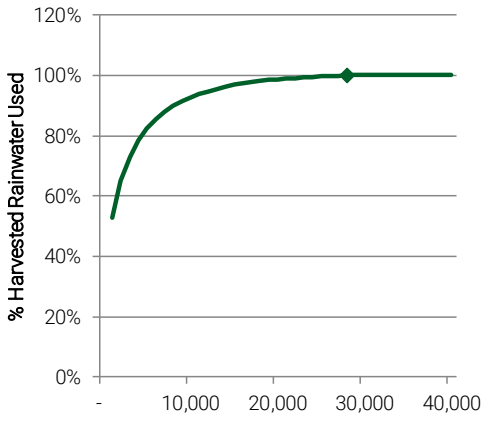
### Outputs

| | |
|---|---|
| % Served by Rainwater | 21.9% |
| % Harvested Rainwater Used | 94.4% |
| Total Potable Water Saved | 357,436 Litre |

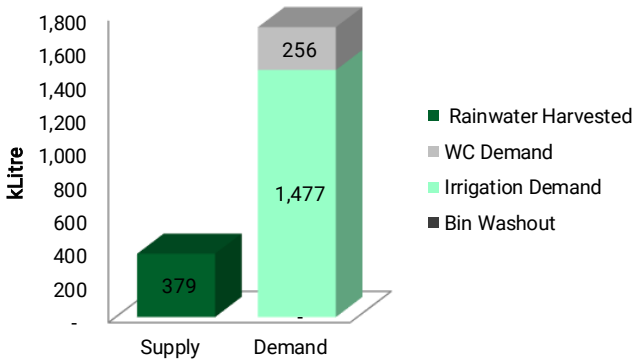
### Rainwater Balance (Monthly Averages)

| Month | Rainwater Harvested (L) | Irrigation Demand (L) | WC Demand (L) | Bin Washout (L) |
|---|---|---|---|---|
| Jan | 24,189 | 218,462 | 21,700 | 0 |
| Feb | 31,000 | 197,900 | 19,600 | 0 |
| Mar | 28,097 | 101,516 | 21,700 | 0 |
| Apr | 34,162 | 97,183 | 21,000 | 0 |
| May | 28,969 | 100,278 | 21,700 | 0 |
| Jun | 31,393 | 45,695 | 21,000 | 0 |
| Jul | 23,390 | 46,557 | 21,700 | 0 |
| Aug | 30,255 | 46,557 | 21,700 | 0 |
| Sep | 31,932 | 133,571 | 21,000 | 0 |
| Oct | 34,324 | 136,091 | 21,700 | 0 |
| Nov | 47,514 | 132,731 | 21,000 | 0 |
| Dec | 33,463 | 220,153 | 21,700 | 0 |
| Total | 378,688 | 1,476,694 | 255,500 | 0 |
| Equivalent STORM tool | | 202 | | 0 |

### Tank Sizing




### Supply-Demand




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## Site Management Statement

Prevention of litter, sediments and pollution entering the stormwater system in the construction phase is to be addressed through introduction of the following initiatives:

- Buffer strips to pervert stormwater runoff.
- Gravel sausage filters at stormwater inlets to prevent silt, mud or any other site contaminant from entering the stormwater system.
- Silt fences under grates at surface entry inlets to prevent sediment from entering the stormwater system.
- Temporary rumble grids to vibrate mud and dirt off vehicles prior to leaving the site.
- The site is to be kept clean from any loose rubbish or rubble.
- Introduction of offsite construction for building elements where deemed appropriate.

The builder is to include these initiatives in the construction management plan and address these during site induction of relevant contractors.

## Maintenance Program

The following maintenance requirements are to be programmed to ensure the rainwater tank operates effectively:

| Item | Description | Maintenance Interval |
|---|---|---|
| Gutters and downpipes | Eave and box gutters are to be inspected and cleaned to prevent large debris from being washed into rainwater tank. | 3 monthly |
| First flush system (as applicable) | Inspect and clean excess sediment from diverter chamber to prevent blockages. | 3 monthly |
| Tank contents | Siphon the tank to inspect contents. If sludge is present, a plumber will be required to drain tank contents and clean the tank. | 2 to 3 years |
| Tank structure | Inspect tank externally for leaks | Yearly |
| Pump system | Inspect pump wiring, plumbing and check for smooth operation. | 6 monthly |
| Plumbing | Plumbing and fixtures connected to the rainwater tank is to be inspected for leaks. | Yearly |

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Blue Factor Report

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Gary Wertheimer - info@giw.com.au
98/104 Riversdale Rd, Hawthorn VIC 3122, Australia
20 May 2026 7:20 a.m.

BLUE FACTOR

## 98-104 Riversdale Road, Hawthorn - Final SMP Rev C

106%
SCORE

The proposed stormwater treatments provide 'deemed to comply' compliance with the minimum planning requirement for total nitrogen but does not comply with all the relevant objectives for management of stormwater flows on-site.

## Project details

| | |
|---|---|
| Name | V2: 98-104 Riversdale Road, Hawthorn - Final SMP Rev C |
| Project ID | 790FD4E6 |
| Street address | 98/104 Riversdale Rd, Hawthorn VIC 3122, Australia |
| Municipality | Boroondara |
| Site area | 2963 $m^2$ |
| Planning Number | |

## Flow and pollutant load reductions

| Item | Result | Target | |
|---|---|---|---|
| Mean annual runoff volume harvested or evapotranspired (%) | 44% | >26% | ✓ |
| Mean annual runoff volume infiltrated or filtered (%) | 0% | >10% | ✗ |
| Total suspended solids (%) | 58% | >80% | ✗ |
| Total phosphorus (%) | 54% | >45% | ✓ |
| Total nitrogen (%) | 47% | >45% | ✓ |
| Total gross pollutants (%) | 67% | >70% | ✗ |

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## Water treatment

### Configuration 1



**Apartment Roof** 510m2



**Rainwater Tank 1**
Rainwater tank retention volume in kilolitres: 16

### Configuration 3



**POS to tank** Paved, 539m2



**Rainwater Tank 2**
Rainwater tank retention volume in kilolitres: 12

## Catchments



**Impermeable Ground** Paved, 350m2



**Landscaping** Pervious (garden and lawn), 972m2



**POS** Paved, 141m2



**Apartment Roof** 510m2



**POS to tank** Paved, 539m2

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**Roof garden** Pervious (garden and lawn), 451m2

## Treatments



**Rainwater Tank 1**
Rainwater tank retention volume in kilolitres: 16

**140%**



**Rainwater Tank 2**
Rainwater tank retention volume in kilolitres: 12

**171%**

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## Buildings & dwellings



**Apartments** Residential Apartment, 110 bedroom(s)

| | |
|---|---|
| **Water sources** | I want to calculate my water use based on fixtures and fittings |
| **Basin taps - Primary water source** | Mains water |
| **Basin taps - Efficiency** | 5 star WELS rating |
| **Showers - Primary water source** | Mains water |
| **Showers - Efficiency** | 3 star WELS rating (> 6 but < 7.5 litres per minute) |
| **Clothes Washer - Primary water source** | Mains water |
| **Clothes Washer - Efficiency** | 5 star WELS rating |
| **Toilets connected to mains water** | 65 |
| **Toilets connected to rainwater** | 33 |
| **Toilets connected to recycled water** | 0 |
| **Toilets efficiency** | 4 star WELS rating |
| **Garden water use** | Garden water demands are not in use |

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**Medical centre**
Non-Residential BCA Class 5 - Commercial/Office,
40 employee(s)

| | |
|---|---|
| **Water sources** | I want to calculate my water use based on fixtures and fittings |
| **Basin taps - Primary water source** | Mains water |
| **Basin taps - Efficiency** | Unrated or existing fitting |
| **Showers - Primary water source** | Mains water |
| **Showers - Efficiency** | Scope out |
| **Clothes Washer - Primary water source** | Rainwater |
| **Clothes Washer - Efficiency** | Scope out |
| **Urinal - Primary water source** | Mains water |
| **Urinal - Efficiency** | No urinals |
| **Toilets connected to mains water** | 10 |
| **Toilets connected to rainwater** | 0 |
| **Toilets connected to recycled water** | 0 |
| **Toilets efficiency** | Unrated or existing fitting |
| **Garden water use** | Garden water demands are in use |
| **Garden primary water source** | Rainwater |
| **Irrigated garden area supplied by:** | |
| • **Mains** | 0 $m^2$ |
| • **Rainwater Tank** | 1431 $m^2$ |
| • **Recycled Water** | 0 $m^2$ |
| **Garden water use efficiency** | Medium |

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## Appendix B: Preliminary FirstRate5 Certificates

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# Nationwide House Energy Rating Scheme® NatHERS® Certificate

**Generated on 7 May 2026 using FirstRate5: 5.5.5a (3.22)**

## Property

| | |
|---|---|
| **Address** | LG.03, 98-104 Riversdale Road , Hawthorn, VIC, 3122 |
| **Lot/DP** | N/A |
| **NCC Class*** | Class 2 |
| **Floor/all Floors** | |
| **Type** | New Home |

## Plans

| | |
|---|---|
| **Main plan** | - |
| **Prepared by** | Tristan Wong Architecture |

## Construction and environment

| **Assessed floor area [m²]*** | | **Exposure type** |
|---|---|---|
| Conditioned* | 177.8 | suburban |
| Unconditioned* | 5.8 | **NatHERS climate zone** |
| Total | 183.6 | 62 Moorabbin Airport |
| Garage | - | |

## Accredited assessor

| | |
|---|---|
| **Name** | Gary Wertheimer |
| **Business name** | GIW Environmental Solutions |
| **Email** | gary@giw.com.au |
| **Phone** | 0390445111 |
| **Accreditation No.** | DMN/10/2024 |
| **Assessor Accrediting Organisation** | |
| Design Matters National | |
| **Declaration of interest** | No |

## NCC Requirements

| | |
|---|---|
| **NCC provisions** | Volume 1 |
| **State/Territory variation** | Yes |

### National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

## Thermal performance star rating




**58.9 MJ/m²**

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

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

## Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

| | Heating | Cooling |
|---|---|---|
| **Modelled** | 46.1 | 12.8 |
| **Load limits** | 91 | 28 |

**Features determining load limits**

| | |
|---|---|
| Floor type (lowest conditioned area) | N/A |
| NCC climate zone 1 or 2 | Y |
| Outdoor living area | N/A |
| Outdoor living area ceiling fan | N/A |

## Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

## Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au

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## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating & Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

**Energy use:**

No Whole of Home performance assessment conducted for this certificate.

**Greenhouse gas emissions:**

No Whole of Home performance assessment conducted for this certificate.

**Cost:**

No Whole of Home performance assessment conducted for this certificate.

**Graph key:**

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## Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| **Genuine certificate check** | | | | | |
| Does this Certificate match the one available at the web address or QR code verification link on the front page? | | ☐ | ☐ | ☐ | ☐ |
| Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate? | | ☐ | ☐ | ☐ | ☐ |
| **Thermal performance check** | | | | | |
| **Windows and glazed doors** | | | | | |
| Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate? | | | ☐ | ☐ | ☐ |
| **External walls** | | | | | |
| Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floor** | | | | | |
| Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling penetrations*** | | | | | |
| Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling** | | | | | |
| Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Roof** | | | | | |
| Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Apartment entrance doors (NCC Class 2 assessments only)** | | | | | |
| 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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected". | ☐ | ☐ | | ☐ | ☐ |
| **Heating and cooling load limits*** | | | | | |
| Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone? | ☐ | ☐ | ☐ | ☐ | ☐ |

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## Certificate check

Continued

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| ***Additional NCC requirements for thermal performance (not included in the NatHERS assessment)*** | | | | | |
| **Thermal bridging** | | | | | |
| Does the dwelling meet the NCC requirement for thermal bridging? | | ☐ | ☐ | ☐ | ☐ |
| **Insulation installation method** | | | | | |
| Has the insulation been installed according to the NCC requirements? | | | ☐ | ☐ | ☐ |
| **Building sealing** | | | | | |
| Does the dwelling meet the NCC requirements for Building Sealing? | | ☐ | ☐ | ☐ | ☐ |
| **Whole of Home performance check** (not applicable if a Whole of Home performance assessment is not conducted) | | | | | |
| **Appliances** | | | | | |
| Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| ***Additional NCC Requirements for Services (not included in the NatHERS assessment)*** | | | | | |
| Does the lighting meet the artificial lighting requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system meet the additional requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| **Provisional values* check** | | | | | |
| Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below? | ☐ | ☐ | | | |

***Other NCC requirements***

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

**Additional notes**

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## Room *schedule*

| Room | Zone Type | Area [m²] |
|---|---|---|
| Shared 1 | basementCarPark | 1741.3 |
| Kitchen/Living | kitchen | 61.1 |
| Pantry | dayTime | 5.7 |
| Passage 2 | dayTime | 3.4 |
| Study | dayTime | 5.4 |
| Ensuite 2 | dayTime | 5.1 |
| Bed 2 entry | dayTime | 4.7 |
| Bedroom 1 | bedroom | 8.9 |
| Bedroom 2 | bedroom | 16.9 |
| Ensuite 3 | nightTime | 5.8 |
| Powder rm | unconditioned | 5.8 |
| Laundry | dayTime | 8.4 |
| Entry Passage | dayTime | 17.8 |
| M Bedroom entry | dayTime | 3.3 |
| M Bedroom | bedroom | 16.1 |
| Ensuite 1 | nightTime | 10 |
| WIR 1 | dayTime | 5.2 |

## 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 |
| CAP-061-06 A | Capral 50 Series Awning in 400 Series DG 6EA-12Ar-6 | 4.42 | 0.4 | 0.38 | 0.42 |

## Window and glazed door *schedule*

| Location | Window ID | Window no. | Height [mm] | Width [mm] | Window type | Opening % | Orientation | Window shading device* |
|---|---|---|---|---|---|---|---|---|

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Kitchen/Living | CAP-055-52 A | Opening 24 | 3400 | 1350 | fixed | 0.0 | E | No |
| Kitchen/Living | CAP-055-52 A | Opening 25 | 3400 | 1350 | fixed | 0.0 | E | No |
| Kitchen/Living | CAP-057-13 A | Opening 26 | 3400 | 2800 | sliding | 45.0 | E | No |
| Bedroom 1 | CAP-055-52 A | Opening 20 | 2650 | 1980 | fixed | 0.0 | E | No |
| Bedroom 1 | CAP-061-06 A | Opening 21 | 2650 | 600 | awning | 60.0 | E | No |
| Bedroom 1 | CAP-055-52 A | Opening 23 | 3400 | 2120 | fixed | 0.0 | N | No |
| Bedroom 2 | CAP-061-06 A | Opening 18 | 2650 | 600 | awning | 60.0 | E | No |
| Bedroom 2 | CAP-055-52 A | Opening 19 | 2650 | 3150 | fixed | 0.0 | E | No |
| M Bedroom | CAP-057-13 A | Opening 27 | 3400 | 2300 | sliding | 45.0 | E | No |
| M Bedroom | CAP-055-52 A | Opening 28 | 3400 | 1100 | fixed | 0.0 | E | No |

## Roof window* *type and performance value*

### Default* roof windows

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

### Custom* roof windows

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

## Roof window* *schedule*

| Location | Window ID | Window no. | Opening % | Area [m²] | Width [mm] | Orientation | Outdoor shade | Indoor shade |
|---|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | | |

## Skylight* *type and performance*

| Skylight ID | Skylight description | Skylight shaft reflectance |
|---|---|---|
| No Data Available | | |

## Skylight* *schedule*

| Location | Skylight ID | Skylight No. | Skylight shaft length [mm] | Area [m²] | Orient-ation | Outdoor shade | Diffuser |
|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | |

## External door *schedule*

| Location | Height [mm] | Width [mm] | Opening % | Orientation |
|---|---|---|---|---|
| No Data Available | | | | |

## External wall *type*

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| Wall ID | Wall type | Solar absorptance | Wall shade [colour] | Bulk insulation [R-value] | Reflective wall wrap* |
|---|---|---|---|---|---|
| 1 | GIW25108 - External Concrete Retaining Wall | 0.5 | Medium | | No |
| 2 | GIW25108 - Externall Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5) | No |
| 3 | GIW25108 - Internal Plasterboard | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 4 | GIW25108 - Internal Intertenancy | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |

## External wall *schedule*

| Location | Wall ID | Height [mm] | Width [mm] | Orientation | Horizontal shading feature* maximum projection [mm] | Vertical shading feature* (yes/no) |
|---|---|---|---|---|---|---|
| Shared 1 | 1 | 2400 | 43919 | S | 0 | No |
| Shared 1 | 1 | 2400 | 34726 | E | 0 | No |
| Shared 1 | 1 | 2400 | 1912 | N | 0 | No |
| Shared 1 | 1 | 2400 | 8142 | E | 0 | No |
| Shared 1 | 1 | 2400 | 1876 | S | 0 | No |
| Shared 1 | 1 | 2400 | 4425 | E | 0 | No |
| Shared 1 | 1 | 2400 | 31164 | N | 0 | No |
| Shared 1 | 1 | 2400 | 25194 | W | 0 | No |
| Shared 1 | 1 | 2400 | 12720 | N | 0 | No |
| Shared 1 | 1 | 2400 | 22120 | W | 0 | No |
| Kitchen/Living | 2 | 3400 | 5706 | E | 2881 | Yes |
| Kitchen/Living | 3 | 3400 | 5687 | W | 0 | No |
| Pantry | 3 | 3400 | 2437 | W | 0 | No |
| Bedroom 1 | 2 | 3400 | 3023 | E | 115 | Yes |
| Bedroom 1 | 2 | 3400 | 2735 | N | 9089 | Yes |
| Bedroom 2 | 2 | 3400 | 3877 | E | 94 | Yes |
| Bedroom 2 | 4 | 3400 | 4042 | S | 0 | No |
| Ensuite 3 | 4 | 3400 | 2911 | S | 0 | No |
| Powder rm | 4 | 3400 | 2274 | S | 0 | No |
| Laundry | 4 | 3400 | 3783 | S | 0 | No |
| Laundry | 3 | 3400 | 2569 | W | 0 | No |
| Entry Passage | 3 | 3400 | 1806 | W | 0 | No |
| M Bedroom | 2 | 3400 | 3382 | E | 0 | Yes |

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| | | | | | | |
|---|---|---|---|---|---|---|
| M Bedroom | 4 | 3400 | 4993 | N | 0 | No |
| Ensuite 1 | 4 | 3400 | 3129 | N | 0 | No |
| Ensuite 1 | 3 | 3400 | 3355 | W | 0 | No |
| WIR 1 | 4 | 3400 | 2294 | N | 0 | No |

## Internal wall *type*

| Wall ID | Wall type | Area [m²] | Bulk insulation |
|---|---|---|---|
| 1 | FR5 - Internal Plasterboard Stud Wall | 259 | |

## Floor *type*

| Location | Construction | Area [m²] | Sub-floor ventilation | Added insulation [R-value] | Covering |
|---|---|---|---|---|---|
| Shared 1 | FR5 - 200mm concrete slab | 1741.3 | Enclosed | R0.0 | none |
| Kitchen/Living | FR5 - 200mm concrete slab | 61.1 | Enclosed | R3.6 | Timber |
| Pantry | FR5 - 200mm concrete slab | 5.7 | Enclosed | R3.6 | Timber |
| Passage 2 | FR5 - 200mm concrete slab | 3.4 | Enclosed | R3.6 | Timber |
| Study | FR5 - 200mm concrete slab | 5.4 | Enclosed | R3.6 | Timber |
| Ensuite 2 | FR5 - 200mm concrete slab | 5.1 | Enclosed | R3.6 | Tiles |
| Bed 2 entry | FR5 - 200mm concrete slab | 0.5 | Enclosed | R3.6 | Carpet |
| Bed 2 entry | FR5 - 200mm concrete slab | 4.3 | Enclosed | R3.6 | Carpet |
| Bedroom 1 | FR5 - 200mm concrete slab | 8.9 | Enclosed | R3.6 | Carpet |
| Bedroom 2 | FR5 - 200mm concrete slab | 0.5 | Enclosed | R3.6 | Carpet |
| Bedroom 2 | FR5 - 200mm concrete slab | 14.7 | Enclosed | R3.6 | Carpet |
| Bedroom 2 | FR5 - 200mm concrete slab | 1.7 | Enclosed | R3.6 | Carpet |
| Ensuite 3 | FR5 - 200mm concrete slab | 5.8 | Enclosed | R3.6 | Tiles |
| Powder rm | FR5 - 200mm concrete slab | 5.8 | Enclosed | R3.6 | Tiles |
| Laundry | FR5 - 200mm concrete slab | 8.4 | Enclosed | R3.6 | Tiles |
| Entry Passage | FR5 - 200mm concrete slab | 17.8 | Enclosed | R3.6 | Timber |
| M Bedroom entry | FR5 - 200mm concrete slab | 3.3 | Enclosed | R3.6 | Carpet |
| M Bedroom | FR5 - 200mm concrete slab | 16.1 | Enclosed | R3.6 | Carpet |
| Ensuite 1 | FR5 - 200mm concrete slab | 10 | Enclosed | R3.6 | Tiles |
| WIR 1 | FR5 - 200mm concrete slab | 5.2 | Enclosed | R3.6 | Carpet |

## Ceiling *type*

| Location | Construction material/type | Bulk insulation R-value [may include edge batt values] | Reflective wrap* |
|---|---|---|---|
| Shared 1 | FR5 - 200mm concrete slab | R3.6 | No |
| Shared 1 | Plasterboard | R0.0 | No |
| Bedroom 2 | Plasterboard | R2.3 | No |

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## Ceiling *penetrations**

| Location | Quantity | Type | Height [mm] | Width [mm] | Sealed/unsealed |
|---|---|---|---|---|---|
| Kitchen/Living | 24 | Downlights | 80 | 80 | Sealed |
| Kitchen/Living | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Pantry | 1 | Downlights | 80 | 80 | Sealed |
| Passage 2 | 1 | Downlights | 80 | 80 | Sealed |
| Study | 2 | Downlights | 80 | 80 | Sealed |
| Ensuite 2 | 2 | Downlights | 80 | 80 | Sealed |
| Ensuite 2 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bed 2 entry | 2 | Downlights | 80 | 80 | Sealed |
| Bedroom 1 | 4 | Downlights | 80 | 80 | Sealed |
| Bedroom 2 | 6 | Downlights | 80 | 80 | Sealed |
| Ensuite 3 | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite 3 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Powder rm | 2 | Downlights | 80 | 80 | Sealed |
| Powder rm | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Laundry | 3 | Downlights | 80 | 80 | Sealed |
| Laundry | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Entry Passage | 5 | Downlights | 80 | 80 | Sealed |
| M Bedroom entry | 1 | Downlights | 80 | 80 | Sealed |
| M Bedroom | 6 | Downlights | 80 | 80 | Sealed |
| Ensuite 1 | 4 | Downlights | 80 | 80 | Sealed |
| Ensuite 1 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| WIR 1 | 2 | Downlights | 80 | 80 | Sealed |

## Ceiling *fans*

| Location | Quantity | Diameter [mm] |
|---|---|---|
| No Data Available | | |

## Roof *type*

| Construction | Added insulation [R-value] | Solar absorptance | Roof shade [colour] |
|---|---|---|---|
| Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab | 0.0 | 0.5 | Medium |

## Thermal bridging *schedule for steel frame elements*

| Building element | Steel section dimensions [height x width, mm] | Frame spacing [mm] | Steel thickness [BMT, mm] | Thermal break [R-value] |
|---|---|---|---|---|
| No Data Available | | | | |

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## Appliance *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

### Cooling system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Heating system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Hot water system

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Hot Water CER Zone | Zone 3 STC | Assessed daily load |
|---|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | | |

### Pool/spa equipment

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | |

## Onsite renewable energy *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Orientation | System size or generation capacity |
|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | |

## Battery *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Size [battery storage capacity] |
|---|---|
| No Whole of Home performance assessment conducted for this certificate. | |

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# Explanatory Notes

## About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

## Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

## Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

# Glossary

| | |
|---|---|
| **Annual energy load** | the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions. |
| **AFRC** | Australian Fenestration Rating Council |
| **Assessed floor area** | the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents. |
| **Ceiling penetrations** | features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts. |
| **Conditioned** | a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages. |
| **COP** | Coefficient of performance |
| **Custom windows** | windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating. |
| **Default windows** | windows that are representative of a specific type of window product and whose properties have been derived by statistical methods. |
| **EER** | Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input |
| **Energy use** | This is your homes rating without solar or batteries. |
| **Energy value** | The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard). |
| **Entrance door** | these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building. |
| **Exposure category – exposed** | terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors). |
| **Exposure category – open** | terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors). |
| **Exposure category – suburban** | terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas. |
| **Exposure category – protected** | terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas. |
| **Horizontal shading feature** | provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels. |
| **National Construction Code (NCC) Class** | the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au. |
| **Net zero home** | a home that achieves a net zero energy value*. |
| **Opening percentage** | the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations. |
| **Provisional value** | an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au |
| **Recommended capacity** | this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person. |
| **Reflective wrap (also known as foil)** | can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties. |
| **Roof window** | for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser. |
| **Shading features** | includes neighbouring buildings, fences, and wing walls, but excludes eaves. |
| **Solar heat gain coefficient (SHGC)** | the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits. |
| **Skylight (also known as roof lights)** | for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level. |

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| | |
|---|---|
| **STCs** | Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory |
| **Thermal breaks** | are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels. |
| **U-value** | the rate of heat transfer through a window. The lower the U-value, the better the insulating ability. |
| **Unconditioned** | a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions. |
| **Vertical shading features** | provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees). |
| **Window shading device** | a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies) |

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# Nationwide House Energy Rating Scheme®
# NatHERS® Certificate

**Generated on 7 May 2026 using FirstRate5: 5.5.5a (3.22)**

## Property

| | |
|---|---|
| **Address** | LG.04, 98-104 Riversdale Road , Hawthorn, VIC, 3122 |
| **Lot/DP** | N/A |
| **NCC Class*** | Class 2 |
| **Floor/all Floors** | |
| **Type** | New Home |

## Plans

| | |
|---|---|
| **Main plan** | - |
| **Prepared by** | Tristan Wong Architecture |

## Construction and environment

| **Assessed floor area [m²]*** | | **Exposure type** |
|---|---|---|
| Conditioned* | 106.5 | suburban |
| Unconditioned* | 5.1 | **NatHERS climate zone** |
| Total | 111.6 | 62 Moorabbin Airport |
| Garage | - | |

## Accredited assessor

| | |
|---|---|
| **Name** | Gary Wertheimer |
| **Business name** | GIW Environmental Solutions |
| **Email** | gary@giw.com.au |
| **Phone** | 0390445111 |
| **Accreditation No.** | DMN/10/2024 |
| **Assessor Accrediting Organisation** | |
| Design Matters National | |
| **Declaration of interest** | No |

## NCC Requirements

| | |
|---|---|
| **NCC provisions** | Volume 1 |
| **State/Territory variation** | Yes |

### National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

## Thermal performance star rating







## Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

| | Heating | Cooling |
|---|---|---|
| **Modelled** | 74.4 | 15.6 |
| **Load limits** | 91 | 28 |

**Features determining load limits**

| | |
|---|---|
| Floor type (lowest conditioned area) | N/A |
| NCC climate zone 1 or 2 | Y |
| Outdoor living area | N/A |
| Outdoor living area ceiling fan | N/A |

## Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

## Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au

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## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating & Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

**Energy use:**

No Whole of Home performance assessment conducted for this certificate.

**Greenhouse gas emissions:**

No Whole of Home performance assessment conducted for this certificate.

**Cost:**

No Whole of Home performance assessment conducted for this certificate.

**Graph key:**

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## Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| **Genuine certificate check** | | | | | |
| Does this Certificate match the one available at the web address or QR code verification link on the front page? | | ☐ | ☐ | ☐ | ☐ |
| Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate? | | ☐ | ☐ | ☐ | ☐ |
| **Thermal performance check** | | | | | |
| **Windows and glazed doors** | | | | | |
| Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate? | | | ☐ | ☐ | ☐ |
| **External walls** | | | | | |
| Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floor** | | | | | |
| Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling penetrations*** | | | | | |
| Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling** | | | | | |
| Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Roof** | | | | | |
| Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Apartment entrance doors (NCC Class 2 assessments only)** | | | | | |
| 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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected". | ☐ | ☐ | | ☐ | ☐ |
| **Heating and cooling load limits*** | | | | | |
| Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone? | ☐ | ☐ | ☐ | ☐ | ☐ |

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## Certificate check

Continued

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| ***Additional NCC requirements for thermal performance (not included in the NatHERS assessment)*** | | | | | |
| **Thermal bridging** | | | | | |
| Does the dwelling meet the NCC requirement for thermal bridging? | | ☐ | ☐ | ☐ | ☐ |
| **Insulation installation method** | | | | | |
| Has the insulation been installed according to the NCC requirements? | | | ☐ | ☐ | ☐ |
| **Building sealing** | | | | | |
| Does the dwelling meet the NCC requirements for Building Sealing? | | ☐ | ☐ | ☐ | ☐ |
| **Whole of Home performance check** (not applicable if a Whole of Home performance assessment is not conducted) | | | | | |
| **Appliances** | | | | | |
| Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| ***Additional NCC Requirements for Services (not included in the NatHERS assessment)*** | | | | | |
| Does the lighting meet the artificial lighting requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system meet the additional requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| **Provisional values* check** | | | | | |
| Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below? | ☐ | ☐ | | | |

***Other NCC requirements***

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

**Additional notes**

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## Room *schedule*

| Room | Zone Type | Area [m²] |
|---|---|---|
| Shared 1 | basementCarPark | 1741.3 |
| Kitchen/Living | kitchen | 36.6 |
| M Bedroom | bedroom | 11 |
| WIR/Study | dayTime | 9.6 |
| Ensuite | nightTime | 5 |
| Laundry | dayTime | 7.4 |
| Bathroom | unconditioned | 5.1 |
| Bedroom 1 | bedroom | 11.7 |
| Entry passage | dayTime | 16.7 |
| Pantry | dayTime | 3.4 |
| Study | dayTime | 5.1 |

## 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-061-06 A | Capral 50 Series Awning in 400 Series DG 6EA-12Ar-6 | 4.42 | 0.4 | 0.38 | 0.42 |

## Window and glazed door *schedule*

| Location | Window ID | Window no. | Height [mm] | Width [mm] | Window type | Opening % | Orientation | Window shading device* |
|---|---|---|---|---|---|---|---|---|
| Kitchen/Living | CAP-057-13 A | Opening 29 | 3400 | 5750 | sliding | 45.0 | N | No |
| Kitchen/Living | CAP-055-52 A | Opening 33 | 3400 | 4400 | fixed | 0.0 | W | No |
| M Bedroom | CAP-057-13 A | Opening 34 | 3400 | 2000 | sliding | 45.0 | W | No |
| M Bedroom | CAP-055-52 A | Opening 35 | 3400 | 1000 | fixed | 0.0 | W | No |
| Bedroom 1 | CAP-055-52 A | Opening 37 | 2650 | 1000 | fixed | 0.0 | N | No |
| Bedroom 1 | CAP-061-06 A | Opening 38 | 2650 | 600 | awning | 60.0 | N | No |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Study | CAP-061-06 A | Opening 31 | 2650 | 600 | awning | 60.0 | N | No |
| Study | CAP-055-52 A | Opening 36 | 2650 | 1400 | fixed | 0.0 | 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] | Width [mm] | Orientation | Outdoor shade | Indoor shade |
|---|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | | |

## Skylight* *type and performance*

| Skylight ID | Skylight description | Skylight shaft reflectance |
|---|---|---|
| No Data Available | | |

## Skylight* *schedule*

| Location | Skylight ID | Skylight No. | Skylight shaft length [mm] | Area [m²] | Orient-ation | Outdoor shade | Diffuser |
|---|---|---|---|---|---|---|---|
| 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 | GIW25108 - External Concrete Retaining Wall | 0.5 | Medium | | No |
| 2 | GIW25108 - Externall Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5) | No |
| 3 | GIW25108 - Internal Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |

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| | | | | | |
|---|---|---|---|---|---|
| 4 | GIW25108 - Internal Plasterboard | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |

## External wall *schedule*

| Location | Wall ID | Height [mm] | Width [mm] | Orientation | Horizontal shading feature* maximum projection [mm] | Vertical shading feature* (yes/no) |
|---|---|---|---|---|---|---|
| Shared 1 | 1 | 2400 | 43919 | S | 0 | No |
| Shared 1 | 1 | 2400 | 34726 | E | 0 | No |
| Shared 1 | 1 | 2400 | 1912 | N | 0 | No |
| Shared 1 | 1 | 2400 | 8142 | E | 0 | No |
| Shared 1 | 1 | 2400 | 1876 | S | 0 | No |
| Shared 1 | 1 | 2400 | 4425 | E | 0 | No |
| Shared 1 | 1 | 2400 | 31164 | N | 0 | No |
| Shared 1 | 1 | 2400 | 25194 | W | 0 | No |
| Shared 1 | 1 | 2400 | 12720 | N | 0 | No |
| Shared 1 | 1 | 2400 | 22120 | W | 0 | No |
| Kitchen/Living | 2 | 3400 | 6417 | N | 1907 | Yes |
| Kitchen/Living | 2 | 3400 | 4227 | W | 0 | Yes |
| M Bedroom | 3 | 3400 | 3732 | S | 0 | No |
| M Bedroom | 2 | 3400 | 2949 | W | 0 | Yes |
| WIR/Study | 3 | 3400 | 5146 | S | 0 | No |
| Ensuite | 3 | 3400 | 2648 | S | 0 | No |
| Ensuite | 3 | 3400 | 1093 | E | 0 | No |
| Laundry | 4 | 3400 | 2686 | N | 0 | No |
| Laundry | 3 | 3400 | 2686 | S | 0 | No |
| Bathroom | 3 | 3400 | 1836 | S | 0 | No |
| Bathroom | 3 | 3400 | 2771 | E | 0 | No |
| Bathroom | 4 | 3400 | 1836 | N | 0 | No |
| Bedroom 1 | 4 | 3400 | 3733 | E | 0 | No |
| Bedroom 1 | 2 | 3400 | 3118 | N | 0 | Yes |
| Bedroom 1 | 2 | 3400 | 225 | W | 0 | Yes |
| Entry passage | 4 | 3400 | 1651 | N | 0 | No |
| Entry passage | 3 | 3400 | 2522 | S | 0 | No |
| Study | 2 | 3400 | 1596 | E | 0 | Yes |
| Study | 2 | 3400 | 3156 | N | 0 | Yes |
| Study | 2 | 3400 | 1652 | W | 6570 | Yes |

## Internal wall *type*

| Wall ID | Wall type | Area [m²] | Bulk insulation |
|---|---|---|---|

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| | | | |
|---|---|---|---|
| 1 | FR5 - Internal Plasterboard Stud Wall | 143.6 | |

## Floor *type*

| Location | Construction | Area [m²] | Sub-floor ventilation | Added insulation [R-value] | Covering |
|---|---|---|---|---|---|
| Shared 1 | FR5 - 200mm concrete slab | 1741.3 | Enclosed | R0.0 | none |
| Kitchen/Living | FR5 - 200mm concrete slab | 0.5 | Enclosed | R3.6 | Timber |
| Kitchen/Living | FR5 - 200mm concrete slab | 36.1 | Enclosed | R3.6 | Timber |
| M Bedroom | FR5 - 200mm concrete slab | 11 | Enclosed | R3.6 | Carpet |
| WIR/Study | FR5 - 200mm concrete slab | 9.6 | Enclosed | R3.6 | Carpet |
| Ensuite | FR5 - 200mm concrete slab | 5 | Enclosed | R3.6 | Tiles |
| Laundry | FR5 - 200mm concrete slab | 7.4 | Enclosed | R3.6 | Tiles |
| Bathroom | FR5 - 200mm concrete slab | 5.1 | Enclosed | R3.6 | Tiles |
| Bedroom 1 | FR5 - 200mm concrete slab | 11.7 | Enclosed | R3.6 | Carpet |
| Entry passage | FR5 - 200mm concrete slab | 16.7 | Enclosed | R3.6 | Timber |
| Pantry | FR5 - 200mm concrete slab | 3.4 | Enclosed | R3.6 | Timber |
| Study | FR5 - 200mm concrete slab | 5.1 | Enclosed | R3.6 | Timber |

## Ceiling *type*

| Location | Construction material/type | Bulk insulation R-value [may include edge batt values] | Reflective wrap* |
|---|---|---|---|
| Shared 1 | FR5 - 200mm concrete slab | R3.6 | No |
| Shared 1 | Plasterboard | R0.0 | No |

## Ceiling *penetrations**

| Location | Quantity | Type | Height [mm] | Width [mm] | Sealed/unsealed |
|---|---|---|---|---|---|
| Kitchen/Living | 15 | Downlights | 80 | 80 | Sealed |
| Kitchen/Living | 1 | Exhaust Fans | 250 | 250 | Sealed |
| M Bedroom | 4 | Downlights | 80 | 80 | Sealed |
| WIR/Study | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite | 2 | Downlights | 80 | 80 | Sealed |
| Ensuite | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Laundry | 3 | Downlights | 80 | 80 | Sealed |
| Laundry | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bathroom | 2 | Downlights | 80 | 80 | Sealed |
| Bathroom | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 1 | 5 | Downlights | 80 | 80 | Sealed |
| Entry passage | 5 | Downlights | 80 | 80 | Sealed |
| Pantry | 1 | Downlights | 80 | 80 | Sealed |

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| | | | | | |
|---|---|---|---|---|---|
| Study | 2 | Downlights | 80 | 80 | Sealed |

## Ceiling *fans*

| Location | Quantity | Diameter [mm] |
|---|---|---|
| No Data Available | | |

## Roof *type*

| Construction | Added insulation [R-value] | Solar absorptance | Roof shade [colour] |
|---|---|---|---|
| Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab | 0.0 | 0.5 | Medium |

## Thermal bridging *schedule for steel frame elements*

| Building element | Steel section dimensions [height x width, mm] | Frame spacing [mm] | Steel thickness [BMT,mm] | Thermal break [R-value] |
|---|---|---|---|---|
| No Data Available | | | | |

## Appliance *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

### Cooling system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Heating system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Hot water system

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Hot Water CER Zone | Zone 3 STC | Assessed daily load |
|---|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | | |

### Pool/spa equipment

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | |

## Onsite renewable energy *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Orientation | System size or generation capacity |
|---|---|---|

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No Whole of Home performance assessment conducted for this certificate.

## Battery *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Size [battery storage capacity] |
|---|---|
| No Whole of Home performance assessment conducted for this certificate. | |

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# Explanatory Notes

## About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

## Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

## Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

# Glossary

| | |
|---|---|
| **Annual energy load** | the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions. |
| **AFRC** | Australian Fenestration Rating Council |
| **Assessed floor area** | the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents. |
| **Ceiling penetrations** | features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts. |
| **Conditioned** | a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages. |
| **COP** | Coefficient of performance |
| **Custom windows** | windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating. |
| **Default windows** | windows that are representative of a specific type of window product and whose properties have been derived by statistical methods. |
| **EER** | Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input |
| **Energy use** | This is your homes rating without solar or batteries. |
| **Energy value** | The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard). |
| **Entrance door** | these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building. |
| **Exposure category – exposed** | terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors). |
| **Exposure category – open** | terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors). |
| **Exposure category – suburban** | terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas. |
| **Exposure category – protected** | terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas. |
| **Horizontal shading feature** | provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels. |
| **National Construction Code (NCC) Class** | the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au. |
| **Net zero home** | a home that achieves a net zero energy value*. |
| **Opening percentage** | the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations. |
| **Provisional value** | an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au |
| **Recommended capacity** | this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person. |
| **Reflective wrap (also known as foil)** | can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties. |
| **Roof window** | for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser. |
| **Shading features** | includes neighbouring buildings, fences, and wing walls, but excludes eaves. |
| **Solar heat gain coefficient (SHGC)** | the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits. |
| **Skylight (also known as roof lights)** | for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level. |

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| | |
|---|---|
| **STCs** | Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory |
| **Thermal breaks** | are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels. |
| **U-value** | the rate of heat transfer through a window. The lower the U-value, the better the insulating ability. |
| **Unconditioned** | a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions. |
| **Vertical shading features** | provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees). |
| **Window shading device** | a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies) |

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# Nationwide House Energy Rating Scheme® NatHERS® Certificate

**Generated on 7 May 2026 using FirstRate5: 5.5.5a (3.22)**

## Property

| | |
|---|---|
| **Address** | 1.08, 98-104 Riversdale Road , Hawthorn, VIC, 3122 |
| **Lot/DP** | N/A |
| **NCC Class*** | Class 2 |
| **Floor/all Floors Type** | New Home |

## Plans

| | |
|---|---|
| **Main plan** | - |
| **Prepared by** | Tristan Wong Architecture |

## Construction and environment

| **Assessed floor area [m²]*** | | **Exposure type** |
|---|---|---|
| Conditioned* | 87.3 | suburban |
| Unconditioned* | 5 | **NatHERS climate zone** |
| Total | 92.3 | 62 Moorabbin Airport |
| Garage | - | |

## Accredited assessor

| | |
|---|---|
| **Name** | Gary Wertheimer |
| **Business name** | GIW Environmental Solutions |
| **Email** | gary@giw.com.au |
| **Phone** | 0390445111 |
| **Accreditation No.** | DMN/10/2024 |
| **Assessor Accrediting Organisation** | Design Matters National |
| **Declaration of interest** | No |

## NCC Requirements

| | |
|---|---|
| **NCC provisions** | Volume 1 |
| **State/Territory variation** | Yes |

### National Construction Code (NCC) requirements

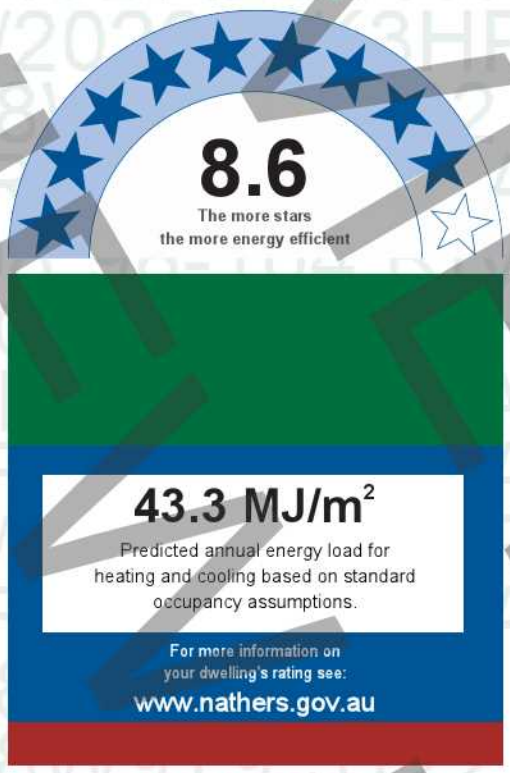
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

## Thermal performance star rating




## Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

| | Heating | Cooling |
|---|---|---|
| **Modelled** | 26.2 | 17.1 |
| **Load limits** | 91 | 28 |

### Features determining load limits

| | |
|---|---|
| Floor type (lowest conditioned area) | N/A |
| NCC climate zone 1 or 2 | Y |
| Outdoor living area | N/A |
| Outdoor living area ceiling fan | N/A |

## Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

## Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au

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## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating & Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

**Energy use:**

No Whole of Home performance assessment conducted for this certificate.

**Greenhouse gas emissions:**

No Whole of Home performance assessment conducted for this certificate.

**Cost:**

No Whole of Home performance assessment conducted for this certificate.

**Graph key:**

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## Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| **Genuine certificate check** | | | | | |
| Does this Certificate match the one available at the web address or QR code verification link on the front page? | | ☐ | ☐ | ☐ | ☐ |
| Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate? | | ☐ | ☐ | ☐ | ☐ |
| **Thermal performance check** | | | | | |
| **Windows and glazed doors** | | | | | |
| Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate? | | | ☐ | ☐ | ☐ |
| **External walls** | | | | | |
| Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floor** | | | | | |
| Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling penetrations*** | | | | | |
| Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling** | | | | | |
| Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Roof** | | | | | |
| Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Apartment entrance doors (NCC Class 2 assessments only)** | | | | | |
| 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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected". | ☐ | ☐ | | ☐ | ☐ |
| **Heating and cooling load limits*** | | | | | |
| Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone? | ☐ | ☐ | ☐ | ☐ | ☐ |

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## Certificate check

Continued

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| ***Additional NCC requirements for thermal performance (not included in the NatHERS assessment)*** | | | | | |
| **Thermal bridging** | | | | | |
| Does the dwelling meet the NCC requirement for thermal bridging? | | ☐ | ☐ | ☐ | ☐ |
| **Insulation installation method** | | | | | |
| Has the insulation been installed according to the NCC requirements? | | | ☐ | ☐ | ☐ |
| **Building sealing** | | | | | |
| Does the dwelling meet the NCC requirements for Building Sealing? | | ☐ | ☐ | ☐ | ☐ |
| **Whole of Home performance check** (not applicable if a Whole of Home performance assessment is not conducted) | | | | | |
| **Appliances** | | | | | |
| Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| ***Additional NCC Requirements for Services (not included in the NatHERS assessment)*** | | | | | |
| Does the lighting meet the artificial lighting requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system meet the additional requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| **Provisional values* check** | | | | | |
| Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below? | ☐ | ☐ | | | |
| ***Other NCC requirements*** | | | | | |

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

**Additional notes**

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## Room *schedule*

| Room | Zone Type | Area [m²] |
|---|---|---|
| Kitchen/Living | kitchen | 38.3 |
| Pantry | dayTime | 2.8 |
| Laundry | dayTime | 4.6 |
| Bathroom 1 | unconditioned | 5 |
| Bedroom 1 | bedroom | 10.8 |
| Bed 2 entry | dayTime | 9.1 |
| Ensuite | dayTime | 7.1 |
| Bedroom 2 | bedroom | 12.9 |
| Passage | dayTime | 1.7 |

## 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-061-06 A | Capral 50 Series Awning in 400 Series DG 6EA-12Ar-6 | 4.42 | 0.4 | 0.38 | 0.42 |

## Window and glazed door *schedule*

| Location | Window ID | Window no. | Height [mm] | Width [mm] | Window type | Opening % | Orientation | Window shading device* |
|---|---|---|---|---|---|---|---|---|
| Kitchen/Living | CAP-057-13 A | Opening 9 | 3400 | 4200 | sliding | 45.0 | W | No |
| Bedroom 1 | CAP-055-52 A | Opening 12 | 2650 | 1100 | fixed | 0.0 | W | No |
| Bedroom 1 | CAP-061-06 A | Opening 13 | 2650 | 600 | awning | 60.0 | W | No |
| Bedroom 2 | CAP-055-52 A | Opening 14 | 2650 | 1100 | fixed | 0.0 | W | No |
| Bedroom 2 | CAP-061-06 A | Opening 15 | 2650 | 600 | awning | 60.0 | W | No |

## Roof window* *type and performance value*

### Default* roof windows

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*Refer to glossary.

| 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] | Width [mm] | Orientation | Outdoor shade | Indoor shade |
|---|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | | |

## Skylight* *type and performance*

| Skylight ID | Skylight description | Skylight shaft reflectance |
|---|---|---|
| No Data Available | | |

## Skylight* *schedule*

| Location | Skylight ID | Skylight No. | Skylight shaft length [mm] | Area [m²] | Orient-ation | Outdoor shade | Diffuser |
|---|---|---|---|---|---|---|---|
| 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 | GIW25108 - Internal Plasterboard | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 2 | GIW25108 - Internal Intertenancy | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 3 | GIW25108 - Externall Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5) | No |
| 4 | GIW25108 - Internal Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |

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## External wall *schedule*

| Location | Wall ID | Height [mm] | Width [mm] | Orientation | Horizontal shading feature* maximum projection [mm] | Vertical shading feature* (yes/no) |
|---|---|---|---|---|---|---|
| Kitchen/Living | 1 | 3400 | 4301 | E | 0 | No |
| Kitchen/Living | 2 | 3400 | 8708 | N | 0 | No |
| Kitchen/Living | 3 | 3400 | 4607 | W | 2513 | Yes |
| Kitchen/Living | 4 | 3400 | 1012 | S | 0 | No |
| Pantry | 4 | 3400 | 1358 | E | 0 | No |
| Laundry | 4 | 3400 | 2091 | S | 0 | No |
| Laundry | 4 | 3400 | 2224 | E | 0 | No |
| Bedroom 1 | 3 | 3400 | 2047 | N | 9983 | Yes |
| Bedroom 1 | 3 | 3400 | 307 | N | 0 | Yes |
| Bedroom 1 | 3 | 3400 | 2978 | W | 0 | Yes |
| Bed 2 entry | 4 | 3400 | 692 | E | 0 | No |
| Bed 2 entry | 4 | 3400 | 1896 | S | 0 | No |
| Ensuite | 1 | 3400 | 2483 | S | 0 | No |
| Ensuite | 4 | 3400 | 2844 | E | 0 | No |
| Bedroom 2 | 3 | 3400 | 2116 | W | 1351 | Yes |
| Bedroom 2 | 1 | 3400 | 655 | W | 0 | No |
| Bedroom 2 | 1 | 3400 | 809 | W | 0 | No |
| Bedroom 2 | 1 | 3400 | 828 | SW | 0 | No |
| Bedroom 2 | 1 | 3400 | 2343 | S | 0 | No |

## Internal wall *type*

| Wall ID | Wall type | Area [m²] | Bulk insulation |
|---|---|---|---|
| 1 | FR5 - Internal Plasterboard Stud Wall | 106.3 | |

## Floor *type*

| Location | Construction | Area [m²] | Sub-floor ventilation | Added insulation [R-value] | Covering |
|---|---|---|---|---|---|
| Kitchen/Living | FR5 - 200mm concrete slab | 38.3 | Enclosed | R0.0 | Timber |
| Pantry | FR5 - 200mm concrete slab | 2.8 | Enclosed | R0.0 | Timber |
| Laundry | FR5 - 200mm concrete slab | 4.6 | Enclosed | R0.0 | Tiles |
| Bathroom 1 | FR5 - 200mm concrete slab | 5 | Enclosed | R0.0 | Tiles |
| Bedroom 1 | FR5 - 200mm concrete slab | 10.8 | Enclosed | R0.0 | Carpet |
| Bed 2 entry | FR5 - 200mm concrete slab | 9.1 | Enclosed | R0.0 | Carpet |
| Ensuite | FR5 - 200mm concrete slab | 7.1 | Enclosed | R0.0 | Tiles |
| Bedroom 2 | FR5 - 200mm concrete slab | 12.9 | Enclosed | R0.0 | Carpet |
| Passage | FR5 - 200mm concrete slab | 1.7 | Enclosed | R0.0 | Timber |

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## Ceiling *type*

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

## Ceiling *penetrations**

| Location | Quantity | Type | Height [mm] | Width [mm] | Sealed/unsealed |
|---|---|---|---|---|---|
| Kitchen/Living | 16 | Downlights | 80 | 80 | Sealed |
| Kitchen/Living | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Pantry | 1 | Downlights | 80 | 80 | Sealed |
| Laundry | 2 | Downlights | 80 | 80 | Sealed |
| Laundry | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bathroom 1 | 2 | Downlights | 80 | 80 | Sealed |
| Bathroom 1 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 1 | 4 | Downlights | 80 | 80 | Sealed |
| Bed 2 entry | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 2 | 6 | Downlights | 80 | 80 | Sealed |
| Passage | 1 | Downlights | 80 | 80 | Sealed |

## Ceiling *fans*

| Location | Quantity | Diameter [mm] |
|---|---|---|
| No Data Available | | |

## Roof *type*

| Construction | Added insulation [R-value] | Solar absorptance | Roof shade [colour] |
|---|---|---|---|
| Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab | 0.0 | 0.5 | Medium |

## Thermal bridging *schedule for steel frame elements*

| Building element | Steel section dimensions [height x width, mm] | Frame spacing [mm] | Steel thickness [BMT,mm] | Thermal break [R-value] |
|---|---|---|---|---|
| No Data Available | | | | |

## Appliance *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

Cooling system

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| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Heating system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Hot water system

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Hot Water CER Zone | Zone 3 STC | Assessed daily load |
|---|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | | |

### Pool/spa equipment

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | |

## Onsite renewable energy *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Orientation | System size or generation capacity |
|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | |

## Battery *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Size [battery storage capacity] |
|---|---|
| No Whole of Home performance assessment conducted for this certificate. | |

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# Explanatory Notes

## About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

## Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

## Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

# Glossary

| | |
|---|---|
| **Annual energy load** | the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions. |
| **AFRC** | Australian Fenestration Rating Council |
| **Assessed floor area** | the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents. |
| **Ceiling penetrations** | features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts. |
| **Conditioned** | a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages. |
| **COP** | Coefficient of performance |
| **Custom windows** | windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating. |
| **Default windows** | windows that are representative of a specific type of window product and whose properties have been derived by statistical methods. |
| **EER** | Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input |
| **Energy use** | This is your homes rating without solar or batteries. |
| **Energy value** | The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard). |
| **Entrance door** | these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building. |
| **Exposure category – exposed** | terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors). |
| **Exposure category – open** | terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors). |
| **Exposure category – suburban** | terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas. |
| **Exposure category – protected** | terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas. |
| **Horizontal shading feature** | provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels. |
| **National Construction Code (NCC) Class** | the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au. |
| **Net zero home** | a home that achieves a net zero energy value*. |
| **Opening percentage** | the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations. |
| **Provisional value** | an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au |
| **Recommended capacity** | this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person. |
| **Reflective wrap (also known as foil)** | can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties. |
| **Roof window** | for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser. |
| **Shading features** | includes neighbouring buildings, fences, and wing walls, but excludes eaves. |
| **Solar heat gain coefficient (SHGC)** | the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits. |
| **Skylight (also known as roof lights)** | for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level. |

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| | |
|---|---|
| **STCs** | Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory |
| **Thermal breaks** | are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels. |
| **U-value** | the rate of heat transfer through a window. The lower the U-value, the better the insulating ability. |
| **Unconditioned** | a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions. |
| **Vertical shading features** | provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees). |
| **Window shading device** | a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies) |

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# Nationwide House Energy Rating Scheme® NatHERS® Certificate

**Generated on 7 May 2026 using FirstRate5: 5.5.5a (3.22)**

## Property

| | |
|---|---|
| **Address** | 2.03, 98-104 Riversdale Road , Hawthorn, VIC, 3122 |
| **Lot/DP** | N/A |
| **NCC Class*** | Class 2 |
| **Floor/all Floors** | |
| **Type** | New Home |

## Plans

| | |
|---|---|
| **Main plan** | - |
| **Prepared by** | Tristan Wong Architecture |

## Construction and environment

| **Assessed floor area [m²]*** | | **Exposure type** |
|---|---|---|
| Conditioned* | 93.4 | suburban |
| Unconditioned* | 6.5 | **NatHERS climate zone** |
| Total | 99.9 | 62 Moorabbin Airport |
| Garage | - | |

## Accredited assessor

| | |
|---|---|
| **Name** | Gary Wertheimer |
| **Business name** | GIW Environmental Solutions |
| **Email** | gary@giw.com.au |
| **Phone** | 0390445111 |
| **Accreditation No.** | DMN/10/2024 |
| **Assessor Accrediting Organisation** | |
| Design Matters National | |
| **Declaration of interest** | No |

## NCC Requirements

| | |
|---|---|
| **NCC provisions** | Volume 1 |
| **State/Territory variation** | Yes |

### National Construction Code (NCC) requirements

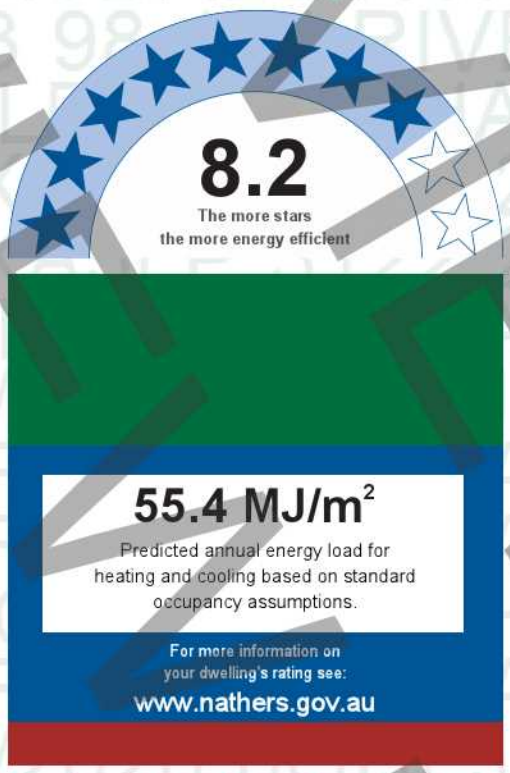
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

## Thermal performance star rating




## Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

| | Heating | Cooling |
|---|---|---|
| **Modelled** | 41.6 | 13.7 |
| **Load limits** | 91 | 28 |

### Features determining load limits

| | |
|---|---|
| Floor type (lowest conditioned area) | N/A |
| NCC climate zone 1 or 2 | Y |
| Outdoor living area | N/A |
| Outdoor living area ceiling fan | N/A |

## Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

## Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au

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## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating & Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:
- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:
- Yes
- No
- NA – not applicable

Outdoor living area:
- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:
- Yes
- No
- NA – not applicable

## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

**Energy use:**

No Whole of Home performance assessment conducted for this certificate.

**Greenhouse gas emissions:**

No Whole of Home performance assessment conducted for this certificate.

**Cost:**

No Whole of Home performance assessment conducted for this certificate.

**Graph key:**

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## Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| **Genuine certificate check** | | | | | |
| Does this Certificate match the one available at the web address or QR code verification link on the front page? | | ☐ | ☐ | ☐ | ☐ |
| Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate? | | ☐ | ☐ | ☐ | ☐ |
| **Thermal performance check** | | | | | |
| **Windows and glazed doors** | | | | | |
| Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate? | | | ☐ | ☐ | ☐ |
| **External walls** | | | | | |
| Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floor** | | | | | |
| Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling penetrations*** | | | | | |
| Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling** | | | | | |
| Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Roof** | | | | | |
| Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Apartment entrance doors (NCC Class 2 assessments only)** | | | | | |
| 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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected". | ☐ | ☐ | | ☐ | ☐ |
| **Heating and cooling load limits*** | | | | | |
| Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone? | ☐ | ☐ | ☐ | ☐ | ☐ |

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## Certificate check

Continued

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| ***Additional NCC requirements for thermal performance (not included in the NatHERS assessment)*** | | | | | |
| **Thermal bridging** | | | | | |
| Does the dwelling meet the NCC requirement for thermal bridging? | | ☐ | ☐ | ☐ | ☐ |
| **Insulation installation method** | | | | | |
| Has the insulation been installed according to the NCC requirements? | | | ☐ | ☐ | ☐ |
| **Building sealing** | | | | | |
| Does the dwelling meet the NCC requirements for Building Sealing? | | ☐ | ☐ | ☐ | ☐ |
| **Whole of Home performance check** (not applicable if a Whole of Home performance assessment is not conducted) | | | | | |
| **Appliances** | | | | | |
| Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| ***Additional NCC Requirements for Services (not included in the NatHERS assessment)*** | | | | | |
| Does the lighting meet the artificial lighting requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system meet the additional requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| **Provisional values* check** | | | | | |
| Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below? | ☐ | ☐ | | | |

***Other NCC requirements***

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

**Additional notes**

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## Room *schedule*

| Room | Zone Type | Area [m²] |
|---|---|---|
| Bedroom 1 | bedroom | 11.9 |
| Kitchen/Living | kitchen | 44.5 |
| Day 3 | dayTime | 7.3 |
| Bathroom | unconditioned | 6.5 |
| Ensuite | dayTime | 6.4 |
| Bedroom 2 | bedroom | 10.2 |
| Laundry | dayTime | 2.9 |
| Bed 2 entry | dayTime | 10.2 |

## 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-061-06 A | Capral 50 Series Awning in 400 Series DG 6EA-12Ar-6 | 4.42 | 0.4 | 0.38 | 0.42 |
| 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 6 | 3400 | 800 | fixed | 0.0 | E | No |
| Bedroom 1 | CAP-061-06 A | Opening 7 | 3400 | 600 | awning | 60.0 | E | No |
| Kitchen/Living | CAP-057-13 A | Opening 1 | 3400 | 4150 | sliding | 45.0 | E | No |
| Bedroom 2 | CAP-055-52 A | Opening 3 | 2650 | 2000 | fixed | 0.0 | E | No |
| Bedroom 2 | CAP-061-06 A | Opening 4 | 2650 | 600 | awning | 60.0 | E | No |

## Roof window* *type and performance value*

### Default* roof windows

Substitution tolerance ranges

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| 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] | Width [mm] | Orientation | Outdoor shade | Indoor shade |
|---|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | | |

## Skylight* *type and performance*

| Skylight ID | Skylight description | Skylight shaft reflectance |
|---|---|---|
| No Data Available | | |

## Skylight* *schedule*

| Location | Skylight ID | Skylight No. | Skylight shaft length [mm] | Area [m²] | Orient-ation | Outdoor shade | Diffuser |
|---|---|---|---|---|---|---|---|
| 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 | GIW25108 - Externall Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5) | No |
| 2 | GIW25108 - Internal Intertenancy | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 3 | GIW25108 - Internal Plasterboard | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | 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 | 3400 | 1628 | E | 2984 | Yes |
| Kitchen/Living | 2 | 3400 | 10661 | S | 0 | No |
| Kitchen/Living | 1 | 3400 | 4166 | E | 2967 | Yes |
| Kitchen/Living | 3 | 3400 | 4183 | W | 0 | No |
| Bathroom | 3 | 3400 | 1824 | W | 0 | No |
| Ensuite | 2 | 3400 | 3529 | N | 0 | No |
| Ensuite | 3 | 3400 | 1824 | W | 0 | No |
| Bedroom 2 | 1 | 3400 | 2836 | S | 0 | Yes |
| Bedroom 2 | 1 | 3400 | 292 | E | 148 | No |
| Bedroom 2 | 1 | 3400 | 2731 | E | 148 | Yes |
| Bedroom 2 | 2 | 3400 | 3369 | N | 0 | No |
| Laundry | 3 | 3400 | 839 | W | 0 | No |
| Bed 2 entry | 2 | 3400 | 6245 | N | 0 | No |

## Internal wall *type*

| Wall ID | Wall type | Area [m²] | Bulk insulation |
|---|---|---|---|
| 1 | FR5 - Internal Plasterboard Stud Wall | 116.1 | |

## Floor *type*

| Location | Construction | Area [m²] | Sub-floor ventilation | Added insulation [R-value] | Covering |
|---|---|---|---|---|---|
| Bedroom 1 | FR5 - 200mm concrete slab | 11.9 | Enclosed | R0.0 | Carpet |
| Kitchen/Living | FR5 - 200mm concrete slab | 44.5 | Enclosed | R0.0 | Timber |
| Day 3 | FR5 - 200mm concrete slab | 7.3 | Enclosed | R0.0 | Timber |
| Bathroom | FR5 - 200mm concrete slab | 6.5 | Enclosed | R0.0 | Tiles |
| Ensuite | FR5 - 200mm concrete slab | 6.4 | Enclosed | R0.0 | Tiles |
| Bedroom 2 | FR5 - 200mm concrete slab | 8.6 | Enclosed | R0.0 | Carpet |
| Bedroom 2 | FR5 - 200mm concrete slab | 1.5 | Enclosed | R0.0 | Carpet |
| Laundry | FR5 - 200mm concrete slab | 2.9 | Enclosed | R0.0 | Tiles |
| Bed 2 entry | FR5 - 200mm concrete slab | 10.2 | Enclosed | R0.0 | Carpet |

## Ceiling *type*

| Location | Construction material/type | Bulk insulation R-value [may include edge batt values] | Reflective wrap* |
|---|---|---|---|
| Bedroom 2 | Plasterboard | R2.3 | No |

## Ceiling *penetrations**

| Location | Quantity | Type | Height [mm] | Width [mm] | Sealed/unsealed |
|---|---|---|---|---|---|
| Bedroom 1 | 4 | Downlights | 80 | 80 | Sealed |
| Kitchen/Living | 18 | Downlights | 80 | 80 | Sealed |

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| | | | | | |
|---|---|---|---|---|---|
| Kitchen/Living | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Day 3 | 3 | Downlights | 80 | 80 | Sealed |
| Bathroom | 3 | Downlights | 80 | 80 | Sealed |
| Bathroom | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Ensuite | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 2 | 4 | Downlights | 80 | 80 | Sealed |
| Laundry | 1 | Downlights | 80 | 80 | Sealed |
| Laundry | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bed 2 entry | 4 | Downlights | 80 | 80 | Sealed |

## Ceiling *fans*

| Location | Quantity | Diameter [mm] |
|---|---|---|
| No Data Available | | |

## Roof *type*

| Construction | Added insulation [R-value] | Solar absorptance | Roof shade [colour] |
|---|---|---|---|
| Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab | 0.0 | 0.5 | Medium |

## Thermal bridging *schedule for steel frame elements*

| Building element | Steel section dimensions [height x width, mm] | Frame spacing [mm] | Steel thickness [BMT,mm] | Thermal break [R-value] |
|---|---|---|---|---|
| No Data Available | | | | |

## Appliance *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

### Cooling system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Heating system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Hot water system

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Hot Water CER Zone | Assessed daily load |
|---|---|---|---|---|
| | | | Zone 3 STC | |

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No Whole of Home performance assessment conducted for this certificate.

### Pool/spa equipment

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | |

## Onsite renewable energy *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Orientation | System size or generation capacity |
|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | |

## Battery *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Size [battery storage capacity] |
|---|---|
| No Whole of Home performance assessment conducted for this certificate. | |

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# Explanatory Notes

## About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

## Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

## Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

# Glossary

| | |
|---|---|
| **Annual energy load** | the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions. |
| **AFRC** | Australian Fenestration Rating Council |
| **Assessed floor area** | the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents. |
| **Ceiling penetrations** | features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts. |
| **Conditioned** | a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages. |
| **COP** | Coefficient of performance |
| **Custom windows** | windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating. |
| **Default windows** | windows that are representative of a specific type of window product and whose properties have been derived by statistical methods. |
| **EER** | Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input |
| **Energy use** | This is your homes rating without solar or batteries. |
| **Energy value** | The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard). |
| **Entrance door** | these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building. |
| **Exposure category – exposed** | terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors). |
| **Exposure category – open** | terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors). |
| **Exposure category – suburban** | terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas. |
| **Exposure category – protected** | terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas. |
| **Horizontal shading feature** | provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels. |
| **National Construction Code (NCC) Class** | the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au. |
| **Net zero home** | a home that achieves a net zero energy value*. |
| **Opening percentage** | the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations. |
| **Provisional value** | an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au |
| **Recommended capacity** | this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person. |
| **Reflective wrap (also known as foil)** | can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties. |
| **Roof window** | for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser. |
| **Shading features** | includes neighbouring buildings, fences, and wing walls, but excludes eaves. |
| **Solar heat gain coefficient (SHGC)** | the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits. |
| **Skylight (also known as roof lights)** | for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level. |

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| | |
|---|---|
| **STCs** | Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory |
| **Thermal breaks** | are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels. |
| **U-value** | the rate of heat transfer through a window. The lower the U-value, the better the insulating ability. |
| **Unconditioned** | a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions. |
| **Vertical shading features** | provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees). |
| **Window shading device** | a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies) |

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# Nationwide House Energy Rating Scheme® NatHERS® Certificate

**Generated on 7 May 2026 using FirstRate5: 5.5.5a (3.22)**

## Property

| | |
|---|---|
| **Address** | 2.06, 98-104 Riversdale Road , Hawthorn, VIC, 3122 |
| **Lot/DP** | N/A |
| **NCC Class*** | Class 2 |
| **Floor/all Floors** | |
| **Type** | New Home |

## Plans

| | |
|---|---|
| **Main plan** | - |
| **Prepared by** | Tristan Wong Architecture |

## Construction and environment

| **Assessed floor area [m²]*** | | **Exposure type** |
|---|---|---|
| Conditioned* | 68.9 | suburban |
| Unconditioned* | 6.3 | **NatHERS climate zone** |
| Total | 75.2 | 62 Moorabbin Airport |
| Garage | - | |

## Accredited assessor

| | |
|---|---|
| **Name** | Gary Wertheimer |
| **Business name** | GIW Environmental Solutions |
| **Email** | gary@giw.com.au |
| **Phone** | 0390445111 |
| **Accreditation No.** | DMN/10/2024 |
| **Assessor Accrediting Organisation** | Design Matters National |
| **Declaration of interest** | No |

## NCC Requirements

| | |
|---|---|
| **NCC provisions** | Volume 1 |
| **State/Territory variation** | Yes |

### National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

## Thermal performance star rating







## Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

| | Heating | Cooling |
|---|---|---|
| **Modelled** | 61.4 | 11.7 |
| **Load limits** | 91 | 28 |

### Features determining load limits

| | |
|---|---|
| Floor type (lowest conditioned area) | N/A |
| NCC climate zone 1 or 2 | Y |
| Outdoor living area | N/A |
| Outdoor living area ceiling fan | N/A |

## Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

## Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au

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## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating & Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:

- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA – not applicable

Outdoor living area:

- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA – not applicable

## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

**Energy use:**

No Whole of Home performance assessment conducted for this certificate.

**Greenhouse gas emissions:**

No Whole of Home performance assessment conducted for this certificate.

**Cost:**

No Whole of Home performance assessment conducted for this certificate.

**Graph key:**

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## Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| **Genuine certificate check** | | | | | |
| Does this Certificate match the one available at the web address or QR code verification link on the front page? | | ☐ | ☐ | ☐ | ☐ |
| Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate? | | ☐ | ☐ | ☐ | ☐ |
| **Thermal performance check** | | | | | |
| **Windows and glazed doors** | | | | | |
| Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate? | | | ☐ | ☐ | ☐ |
| **External walls** | | | | | |
| Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floor** | | | | | |
| Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling penetrations*** | | | | | |
| Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling** | | | | | |
| Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Roof** | | | | | |
| Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Apartment entrance doors (NCC Class 2 assessments only)** | | | | | |
| 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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected". | ☐ | ☐ | | ☐ | ☐ |
| **Heating and cooling load limits*** | | | | | |
| Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone? | ☐ | ☐ | ☐ | ☐ | ☐ |

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*Refer to glossary.

## Certificate check

Continued

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| ***Additional NCC requirements for thermal performance (not included in the NatHERS assessment)*** | | | | | |
| **Thermal bridging** | | | | | |
| Does the dwelling meet the NCC requirement for thermal bridging? | | ☐ | ☐ | ☐ | ☐ |
| **Insulation installation method** | | | | | |
| Has the insulation been installed according to the NCC requirements? | | | ☐ | ☐ | ☐ |
| **Building sealing** | | | | | |
| Does the dwelling meet the NCC requirements for Building Sealing? | | ☐ | ☐ | ☐ | ☐ |
| **Whole of Home performance check** (not applicable if a Whole of Home performance assessment is not conducted) | | | | | |
| **Appliances** | | | | | |
| Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| ***Additional NCC Requirements for Services (not included in the NatHERS assessment)*** | | | | | |
| Does the lighting meet the artificial lighting requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system meet the additional requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| **Provisional values* check** | | | | | |
| Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below? | ☐ | ☐ | | | |

***Other NCC requirements***

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

**Additional notes**

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## Room *schedule*

| Room | Zone Type | Area [m²] |
|---|---|---|
| Kitchen/Living | kitchen | 35.2 |
| Laundry | dayTime | 0.8 |
| Bathroom | unconditioned | 6.3 |
| Bedroom 1 | bedroom | 10.8 |
| Ensuite | nightTime | 5.4 |
| WIR | nightTime | 6 |
| Bedroom 2 | bedroom | 10.6 |

## 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-061-06 A | Capral 50 Series Awning in 400 Series DG 6EA-12Ar-6 | 4.42 | 0.4 | 0.38 | 0.42 |

## Window and glazed door *schedule*

| Location | Window ID | Window no. | Height [mm] | Width [mm] | Window type | Opening % | Orientation | Window shading device* |
|---|---|---|---|---|---|---|---|---|
| Kitchen/Living | CAP-057-13 A | Opening 15 | 3400 | 4380 | sliding | 66.0 | S | No |
| Bedroom 1 | CAP-055-52 A | Opening 17 | 2650 | 1400 | fixed | 0.0 | S | No |
| Bedroom 1 | CAP-061-06 A | Opening 18 | 2650 | 600 | awning | 60.0 | S | No |
| Bedroom 2 | CAP-057-13 A | Opening 19 | 3400 | 3000 | sliding | 66.0 | 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 | | | | | |

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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] | Width [mm] | Orientation | Outdoor shade | Indoor shade |
|---|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | | |

## Skylight* *type and performance*

| Skylight ID | Skylight description | Skylight shaft reflectance |
|---|---|---|
| No Data Available | | |

## Skylight* *schedule*

| Location | Skylight ID | Skylight No. | Skylight shaft length [mm] | Area [m²] | Orient-ation | Outdoor shade | Diffuser |
|---|---|---|---|---|---|---|---|
| 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 | GIW25108 - Externall Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5) | No |
| 2 | GIW25108 - Internal Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 3 | GIW25108 - Internal Plasterboard | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 4 | GIW25108 - Internal Intertenancy | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | 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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| | | | | | | |
|---|---|---|---|---|---|---|
| Kitchen/Living | 1 | 3400 | 4559 | S | 1938 | Yes |
| Kitchen/Living | 2 | 3400 | 3274 | E | 0 | No |
| Kitchen/Living | 3 | 3400 | 4559 | N | 0 | No |
| Laundry | 2 | 3400 | 672 | N | 0 | No |
| Bathroom | 4 | 3400 | 2522 | E | 0 | No |
| Bathroom | 2 | 3400 | 2145 | N | 0 | No |
| Bedroom 1 | 1 | 3400 | 797 | S | 126 | Yes |
| Bedroom 1 | 1 | 3400 | 2161 | S | 126 | Yes |
| Bedroom 1 | 4 | 3400 | 3653 | E | 0 | No |
| Bedroom 1 | 1 | 3400 | 1826 | W | 7665 | Yes |
| Ensuite | 3 | 3400 | 2990 | N | 0 | No |
| Ensuite | 4 | 3400 | 1818 | W | 0 | No |
| WIR | 4 | 3400 | 2003 | W | 0 | No |
| Bedroom 2 | 1 | 3400 | 2981 | S | 1944 | Yes |
| Bedroom 2 | 4 | 3400 | 3544 | W | 0 | No |

## Internal wall *type*

| Wall ID | Wall type | Area [m²] | Bulk insulation |
|---|---|---|---|
| 1 | FR5 - Internal Plasterboard Stud Wall | 76.2 | |

## Floor *type*

| Location | Construction | Area [m²] | Sub-floor ventilation | Added insulation [R-value] | Covering |
|---|---|---|---|---|---|
| Kitchen/Living | FR5 - 200mm concrete slab | 35.2 | Enclosed | R0.0 | Timber |
| Laundry | FR5 - 200mm concrete slab | 0.8 | Enclosed | R0.0 | Tiles |
| Bathroom | FR5 - 200mm concrete slab | 6.3 | Enclosed | R0.0 | Tiles |
| Bedroom 1 | FR5 - 200mm concrete slab | 6 | Enclosed | R0.0 | Carpet |
| Bedroom 1 | FR5 - 200mm concrete slab | 4.8 | Enclosed | R0.0 | Carpet |
| Ensuite | FR5 - 200mm concrete slab | 5.4 | Enclosed | R0.0 | Tiles |
| WIR | FR5 - 200mm concrete slab | 6 | Enclosed | R0.0 | Carpet |
| Bedroom 2 | FR5 - 200mm concrete slab | 10.6 | Enclosed | R0.0 | Carpet |

## Ceiling *type*

| Location | Construction material/type | Bulk insulation R-value [may include edge batt values] | Reflective wrap* |
|---|---|---|---|
| Bedroom 1 | Plasterboard | R2.3 | No |

## Ceiling *penetrations**

| Location | Quantity | Type | Height [mm] | Width [mm] | Sealed/unsealed |
|---|---|---|---|---|---|
| Kitchen/Living | 14 | Downlights | 80 | 80 | Sealed |

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| | | | | | |
|---|---|---|---|---|---|
| Kitchen/Living | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bathroom | 3 | Downlights | 80 | 80 | Sealed |
| Bathroom | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 1 | 4 | Downlights | 80 | 80 | Sealed |
| Ensuite | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite | 1 | Exhaust Fans | 250 | 250 | Sealed |
| WIR | 3 | Downlights | 80 | 80 | Sealed |
| Bedroom 2 | 4 | Downlights | 80 | 80 | Sealed |

## Ceiling *fans*

| Location | Quantity | Diameter [mm] |
|---|---|---|
| No Data Available | | |

## Roof *type*

| Construction | Added insulation [R-value] | Solar absorptance | Roof shade [colour] |
|---|---|---|---|
| Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab | 0.0 | 0.5 | Medium |

## Thermal bridging *schedule for steel frame elements*

| Building element | Steel section dimensions [height x width, mm] | Frame spacing [mm] | Steel thickness [BMT,mm] | Thermal break [R-value] |
|---|---|---|---|---|
| No Data Available | | | | |

## Appliance *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

### Cooling system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Heating system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Hot water system

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Hot Water CER Zone | Zone 3 STC | Assessed daily load |
|---|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | | |

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Pool/spa equipment

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | |

## Onsite renewable energy *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Orientation | System size or generation capacity |
|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | |

## Battery *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Size [battery storage capacity] |
|---|---|
| No Whole of Home performance assessment conducted for this certificate. | |

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# Explanatory Notes

## About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

## Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

## Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

# Glossary

| | |
|---|---|
| **Annual energy load** | the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions. |
| **AFRC** | Australian Fenestration Rating Council |
| **Assessed floor area** | the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents. |
| **Ceiling penetrations** | features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts. |
| **Conditioned** | a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages. |
| **COP** | Coefficient of performance |
| **Custom windows** | windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating. |
| **Default windows** | windows that are representative of a specific type of window product and whose properties have been derived by statistical methods. |
| **EER** | Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input |
| **Energy use** | This is your homes rating without solar or batteries. |
| **Energy value** | The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard). |
| **Entrance door** | these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building. |
| **Exposure category – exposed** | terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors). |
| **Exposure category – open** | terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors). |
| **Exposure category – suburban** | terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas. |
| **Exposure category – protected** | terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas. |
| **Horizontal shading feature** | provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels. |
| **National Construction Code (NCC) Class** | the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au. |
| **Net zero home** | a home that achieves a net zero energy value*. |
| **Opening percentage** | the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations. |
| **Provisional value** | an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au |
| **Recommended capacity** | this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person. |
| **Reflective wrap (also known as foil)** | can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties. |
| **Roof window** | for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser. |
| **Shading features** | includes neighbouring buildings, fences, and wing walls, but excludes eaves. |
| **Solar heat gain coefficient (SHGC)** | the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits. |
| **Skylight (also known as roof lights)** | for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level. |

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| | |
|---|---|
| **STCs** | Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory |
| **Thermal breaks** | are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels. |
| **U-value** | the rate of heat transfer through a window. The lower the U-value, the better the insulating ability. |
| **Unconditioned** | a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions. |
| **Vertical shading features** | provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees). |
| **Window shading device** | a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies) |

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# Nationwide House Energy Rating Scheme® NatHERS® Certificate

**Generated on 7 May 2026 using FirstRate5: 5.5.5a (3.22)**

## Property

| | |
|---|---|
| **Address** | 3.03, 98-104 Riversdale Road , Hawthorn, VIC, 3122 |
| **Lot/DP** | N/A |
| **NCC Class*** | Class 2 |
| **Floor/all Floors** | |
| **Type** | New Home |

## Plans

| | |
|---|---|
| **Main plan** | - |
| **Prepared by** | Tristan Wong Architecture |

## Construction and environment

| **Assessed floor area [m²]*** | | **Exposure type** |
|---|---|---|
| Conditioned* | 153.6 | suburban |
| Unconditioned* | 2.3 | **NatHERS climate zone** |
| Total | 155.9 | 62 Moorabbin Airport |
| Garage | - | |

## Accredited assessor

| | |
|---|---|
| **Name** | Gary Wertheimer |
| **Business name** | GIW Environmental Solutions |
| **Email** | gary@giw.com.au |
| **Phone** | 0390445111 |
| **Accreditation No.** | DMN/10/2024 |
| **Assessor Accrediting Organisation** | |
| Design Matters National | |
| **Declaration of interest** | No |

## NCC Requirements

| | |
|---|---|
| **NCC provisions** | Volume 1 |
| **State/Territory variation** | Yes |

### National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

## Thermal performance star rating







## Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

| | Heating | Cooling |
|---|---|---|
| **Modelled** | 51.6 | 17.1 |
| **Load limits** | 91 | 28 |

**Features determining load limits**

| | |
|---|---|
| Floor type (lowest conditioned area) | N/A |
| NCC climate zone 1 or 2 | Y |
| Outdoor living area | N/A |
| Outdoor living area ceiling fan | N/A |

## Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

## Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au

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## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating & Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:

- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA – not applicable

Outdoor living area:

- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA – not applicable

## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

**Energy use:**

No Whole of Home performance assessment conducted for this certificate.

**Greenhouse gas emissions:**

No Whole of Home performance assessment conducted for this certificate.

**Cost:**

No Whole of Home performance assessment conducted for this certificate.

**Graph key:**

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## Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| **Genuine certificate check** | | | | | |
| Does this Certificate match the one available at the web address or QR code verification link on the front page? | | ☐ | ☐ | ☐ | ☐ |
| Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate? | | ☐ | ☐ | ☐ | ☐ |
| **Thermal performance check** | | | | | |
| **Windows and glazed doors** | | | | | |
| Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate? | | | ☐ | ☐ | ☐ |
| **External walls** | | | | | |
| Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floor** | | | | | |
| Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling penetrations*** | | | | | |
| Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling** | | | | | |
| Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Roof** | | | | | |
| Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Apartment entrance doors (NCC Class 2 assessments only)** | | | | | |
| 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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected". | ☐ | ☐ | | ☐ | ☐ |
| **Heating and cooling load limits*** | | | | | |
| Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone? | ☐ | ☐ | ☐ | ☐ | ☐ |

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## Certificate check

Continued

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| ***Additional NCC requirements for thermal performance (not included in the NatHERS assessment)*** | | | | | |
| **Thermal bridging** | | | | | |
| Does the dwelling meet the NCC requirement for thermal bridging? | | ☐ | ☐ | ☐ | ☐ |
| **Insulation installation method** | | | | | |
| Has the insulation been installed according to the NCC requirements? | | | ☐ | ☐ | ☐ |
| **Building sealing** | | | | | |
| Does the dwelling meet the NCC requirements for Building Sealing? | | ☐ | ☐ | ☐ | ☐ |
| **Whole of Home performance check** (not applicable if a Whole of Home performance assessment is not conducted) | | | | | |
| **Appliances** | | | | | |
| Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| ***Additional NCC Requirements for Services (not included in the NatHERS assessment)*** | | | | | |
| Does the lighting meet the artificial lighting requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system meet the additional requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| **Provisional values* check** | | | | | |
| Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below? | ☐ | ☐ | | | |
| ***Other NCC requirements*** | | | | | |

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

**Additional notes**

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## Room *schedule*

| Room | Zone Type | Area [m²] |
|---|---|---|
| Kitchen/Living | kitchen | 56.4 |
| Study | dayTime | 7.3 |
| Pantry | dayTime | 5.8 |
| Bedroom 1 | bedroom | 11.4 |
| Bedroom 2 | bedroom | 10.8 |
| Bed 2 entry | dayTime | 4.9 |
| M Bedroom | bedroom | 13.4 |
| M Bed entry | dayTime | 2.1 |
| WIR | nightTime | 8.2 |
| Ensuite | nightTime | 9.4 |
| Bathroom 1 | dayTime | 5.1 |
| Laundry | dayTime | 4.7 |
| Entry/ passage | dayTime | 14.1 |
| Powder rm | unconditioned | 2.3 |

## 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-061-06 A | Capral 50 Series Awning in 400 Series DG 6EA-12Ar-6 | 4.42 | 0.4 | 0.38 | 0.42 |

## Window and glazed door *schedule*

| Location | Window ID | Window no. | Height [mm] | Width [mm] | Window type | Opening % | Orientation | Window shading device* |
|---|---|---|---|---|---|---|---|---|
| Kitchen/Living | CAP-057-13 A | Opening 1 | 3400 | 3900 | sliding | 66.0 | S | No |
| Kitchen/Living | CAP-057-13 A | Opening 2 | 3400 | 3000 | sliding | 45.0 | E | No |
| Kitchen/Living | CAP-057-13 A | Opening 3 | 3400 | 2300 | sliding | 45.0 | E | No |
| Study | CAP-057-13 A | Opening 4 | 3400 | 1780 | sliding | 45.0 | E | No |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Bedroom 1 | CAP-061-06 A | Opening 5 | 3400 | 950 | awning | 60.0 | E | No |
| Bedroom 2 | CAP-057-13 A | Opening 6 | 3400 | 3100 | sliding | 66.0 | E | No |
| M Bedroom | CAP-057-13 A | Opening 7 | 3400 | 3000 | sliding | 66.0 | 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] | Width [mm] | Orientation | Outdoor shade | Indoor shade |
|---|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | | |

## Skylight* *type and performance*

| Skylight ID | Skylight description | Skylight shaft reflectance |
|---|---|---|
| No Data Available | | |

## Skylight* *schedule*

| Location | Skylight ID | Skylight No. | Skylight shaft length [mm] | Area [m²] | Orient-ation | Outdoor shade | Diffuser |
|---|---|---|---|---|---|---|---|
| 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 | GIW25108 - Externall Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5) | No |
| 2 | GIW25108 - Internal Plasterboard | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |

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| | | | | | |
|---|---|---|---|---|---|
| 3 | GIW25108 - Internal Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 4 | GIW25108 - Internal Intertenancy | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |

## External wall *schedule*

| Location | Wall ID | Height [mm] | Width [mm] | Orientation | Horizontal shading feature* maximum projection [mm] | Vertical shading feature* (yes/no) |
|---|---|---|---|---|---|---|
| Kitchen/Living | 1 | 3400 | 6461 | S | 76 | Yes |
| Kitchen/Living | 1 | 3400 | 8288 | E | 65 | Yes |
| Kitchen/Living | 2 | 3400 | 4404 | W | 0 | No |
| Kitchen/Living | 3 | 3400 | 1003 | S | 0 | No |
| Kitchen/Living | 3 | 3400 | 2839 | W | 0 | No |
| Study | 1 | 3400 | 2197 | E | 82 | Yes |
| Pantry | 2 | 3400 | 2510 | W | 0 | No |
| Bedroom 1 | 1 | 3400 | 1838 | E | 100 | Yes |
| Bedroom 2 | 1 | 3400 | 3394 | E | 114 | Yes |
| Bedroom 2 | 1 | 3400 | 3017 | S | 0 | Yes |
| M Bedroom | 1 | 3400 | 3394 | E | 114 | Yes |
| M Bedroom | 4 | 3400 | 3959 | N | 0 | No |
| WIR | 4 | 3400 | 3535 | N | 0 | No |
| Ensuite | 4 | 3400 | 2703 | N | 0 | No |
| Ensuite | 2 | 3400 | 3475 | W | 0 | No |
| Bathroom 1 | 2 | 3400 | 1850 | W | 0 | No |
| Laundry | 2 | 3400 | 1726 | W | 0 | No |
| Entry/ passage | 2 | 3400 | 1252 | W | 0 | No |
| Powder rm | 2 | 3400 | 882 | W | 0 | No |

## Internal wall *type*

| Wall ID | Wall type | Area [m²] | Bulk insulation |
|---|---|---|---|
| 1 | FR5 - Internal Plasterboard Stud Wall | 208 | |

## Floor *type*

| Location | Construction | Area [m²] | Sub-floor ventilation | Added insulation [R-value] | Covering |
|---|---|---|---|---|---|
| Kitchen/Living | FR5 - 200mm concrete slab | 56.4 | Enclosed | R0.0 | Timber |
| Study | FR5 - 200mm concrete slab | 7.13 | Enclosed | R0.0 | Timber |
| Pantry | FR5 - 200mm concrete slab | 5.8 | Enclosed | R0.0 | Timber |

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| | | | | | |
|---|---|---|---|---|---|
| Bedroom 1 | FR5 - 200mm concrete slab | 11.4 | Enclosed | R0.0 | Carpet |
| Bedroom 2 | FR5 - 200mm concrete slab | 1.2 | Enclosed | R0.0 | Carpet |
| Bedroom 2 | FR5 - 200mm concrete slab | 9.6 | Enclosed | R0.0 | Carpet |
| Bed 2 entry | FR5 - 200mm concrete slab | 4.9 | Enclosed | R0.0 | Carpet |
| M Bedroom | FR5 - 200mm concrete slab | 8.9 | Enclosed | R0.0 | Carpet |
| M Bedroom | FR5 - 200mm concrete slab | 4.5 | Enclosed | R0.0 | Carpet |
| M Bed entry | FR5 - 200mm concrete slab | 2.1 | Enclosed | R0.0 | Carpet |
| WIR | FR5 - 200mm concrete slab | 8.2 | Enclosed | R0.0 | Carpet |
| Ensuite | FR5 - 200mm concrete slab | 9.4 | Enclosed | R0.0 | Tiles |
| Bathroom 1 | FR5 - 200mm concrete slab | 5.1 | Enclosed | R0.0 | Tiles |
| Laundry | FR5 - 200mm concrete slab | 4.7 | Enclosed | R0.0 | Tiles |
| Entry/ passage | FR5 - 200mm concrete slab | 14.1 | Enclosed | R0.0 | Timber |
| Powder rm | FR5 - 200mm concrete slab | 2.3 | Enclosed | R0.0 | Tiles |

## Ceiling *type*

| Location | Construction material/type | Bulk insulation R-value [may include edge batt values] | Reflective wrap* |
|---|---|---|---|
| Bedroom 2 | Plasterboard | R2.3 | No |
| M Bedroom | Plasterboard | R2.3 | No |

## Ceiling *penetrations**

| Location | Quantity | Type | Height [mm] | Width [mm] | Sealed/unsealed |
|---|---|---|---|---|---|
| Kitchen/Living | 23 | Downlights | 80 | 80 | Sealed |
| Kitchen/Living | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Study | 3 | Downlights | 80 | 80 | Sealed |
| Pantry | 2 | Downlights | 80 | 80 | Sealed |
| Bedroom 1 | 4 | Downlights | 80 | 80 | Sealed |
| Bedroom 2 | 4 | Downlights | 80 | 80 | Sealed |
| Bed 2 entry | 1 | Downlights | 80 | 80 | Sealed |
| M Bedroom | 5 | Downlights | 80 | 80 | Sealed |
| M Bed entry | 1 | Downlights | 80 | 80 | Sealed |
| WIR | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite | 4 | Downlights | 80 | 80 | Sealed |
| Ensuite | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bathroom 1 | 2 | Downlights | 80 | 80 | Sealed |
| Bathroom 1 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Laundry | 2 | Downlights | 80 | 80 | Sealed |
| Laundry | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Powder rm | 1 | Downlights | 80 | 80 | Sealed |

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| | | | | | |
|---|---|---|---|---|---|
| Powder rm | 1 | Exhaust Fans | 250 | 250 | Sealed |

## Ceiling *fans*

| Location | Quantity | Diameter [mm] |
|---|---|---|
| No Data Available | | |

## Roof *type*

| Construction | Added insulation [R-value] | Solar absorptance | Roof shade [colour] |
|---|---|---|---|
| Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab | 0.0 | 0.5 | Medium |

## Thermal bridging *schedule for steel frame elements*

| Building element | Steel section dimensions [height x width, mm] | Frame spacing [mm] | Steel thickness [BMT,mm] | Thermal break [R-value] |
|---|---|---|---|---|
| No Data Available | | | | |

## Appliance *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

### Cooling system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Heating system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Hot water system

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Hot Water CER Zone | Zone 3 STC | Assessed daily load |
|---|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | | |

### Pool/spa equipment

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | |

## Onsite renewable energy *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Orientation | System size or generation capacity |
|---|---|---|

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No Whole of Home performance assessment conducted for this certificate.

## Battery *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Size [battery storage capacity] |
|---|---|
| No Whole of Home performance assessment conducted for this certificate. | |

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# Explanatory Notes

## About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

## Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

## Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

# Glossary

| | |
|---|---|
| **Annual energy load** | the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions. |
| **AFRC** | Australian Fenestration Rating Council |
| **Assessed floor area** | the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents. |
| **Ceiling penetrations** | features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts. |
| **Conditioned** | a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages. |
| **COP** | Coefficient of performance |
| **Custom windows** | windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating. |
| **Default windows** | windows that are representative of a specific type of window product and whose properties have been derived by statistical methods. |
| **EER** | Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input |
| **Energy use** | This is your homes rating without solar or batteries. |
| **Energy value** | The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard). |
| **Entrance door** | these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building. |
| **Exposure category – exposed** | terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors). |
| **Exposure category – open** | terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors). |
| **Exposure category – suburban** | terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas. |
| **Exposure category – protected** | terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas. |
| **Horizontal shading feature** | provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels. |
| **National Construction Code (NCC) Class** | the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au. |
| **Net zero home** | a home that achieves a net zero energy value*. |
| **Opening percentage** | the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations. |
| **Provisional value** | an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au |
| **Recommended capacity** | this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person. |
| **Reflective wrap (also known as foil)** | can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties. |
| **Roof window** | for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser. |
| **Shading features** | includes neighbouring buildings, fences, and wing walls, but excludes eaves. |
| **Solar heat gain coefficient (SHGC)** | the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits. |
| **Skylight (also known as roof lights)** | for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level. |

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| | |
|---|---|
| **STCs** | Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory |
| **Thermal breaks** | are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels. |
| **U-value** | the rate of heat transfer through a window. The lower the U-value, the better the insulating ability. |
| **Unconditioned** | a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions. |
| **Vertical shading features** | provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees). |
| **Window shading device** | a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies) |

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# Nationwide House Energy Rating Scheme® NatHERS® Certificate

**Generated on 7 May 2026 using FirstRate5: 5.5.5a (3.22)**

## Property

| | |
|---|---|
| **Address** | 5.01, 98-104 Riversdale Road , Hawthorn, VIC, 3122 |
| **Lot/DP** | N/A |
| **NCC Class*** | Class 2 |
| **Floor/all Floors Type** | New Home |

## Plans

| | |
|---|---|
| **Main plan** | - |
| **Prepared by** | Tristan Wong Architecture |

## Construction and environment

| **Assessed floor area [m²]*** | | **Exposure type** |
|---|---|---|
| Conditioned* | 192.6 | open |
| Unconditioned* | 2.1 | **NatHERS climate zone** |
| Total | 194.7 | 62 Moorabbin Airport |
| Garage | - | |

## Accredited assessor

| | |
|---|---|
| **Name** | Gary Wertheimer |
| **Business name** | GIW Environmental Solutions |
| **Email** | gary@giw.com.au |
| **Phone** | 0390445111 |
| **Accreditation No.** | DMN/10/2024 |
| **Assessor Accrediting Organisation** | Design Matters National |
| **Declaration of interest** | No |

## NCC Requirements

| | |
|---|---|
| **NCC provisions** | Volume 1 |
| **State/Territory variation** | Yes |

### National Construction Code (NCC) requirements

The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

## Thermal performance star rating







## Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

| | Heating | Cooling |
|---|---|---|
| **Modelled** | 79.8 | 15 |
| **Load limits** | 91 | 28 |

**Features determining load limits**

| | |
|---|---|
| Floor type (lowest conditioned area) | N/A |
| NCC climate zone 1 or 2 | Y |
| Outdoor living area | N/A |
| Outdoor living area ceiling fan | N/A |

## Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

## Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au

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## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating & Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:

- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA – not applicable

Outdoor living area:

- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA – not applicable

## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

**Energy use:**

No Whole of Home performance assessment conducted for this certificate.

**Greenhouse gas emissions:**

No Whole of Home performance assessment conducted for this certificate.

**Cost:**

No Whole of Home performance assessment conducted for this certificate.

**Graph key:**

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## Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| **Genuine certificate check** | | | | | |
| Does this Certificate match the one available at the web address or QR code verification link on the front page? | | ☐ | ☐ | ☐ | ☐ |
| Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate? | | ☐ | ☐ | ☐ | ☐ |
| **Thermal performance check** | | | | | |
| **Windows and glazed doors** | | | | | |
| Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate? | | | ☐ | ☐ | ☐ |
| **External walls** | | | | | |
| Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floor** | | | | | |
| Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling penetrations*** | | | | | |
| Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling** | | | | | |
| Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Roof** | | | | | |
| Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Apartment entrance doors (NCC Class 2 assessments only)** | | | | | |
| 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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected". | ☐ | ☐ | | ☐ | ☐ |
| **Heating and cooling load limits*** | | | | | |
| Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone? | ☐ | ☐ | ☐ | ☐ | ☐ |

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## Certificate check

Continued

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| ***Additional NCC requirements for thermal performance (not included in the NatHERS assessment)*** | | | | | |
| **Thermal bridging** | | | | | |
| Does the dwelling meet the NCC requirement for thermal bridging? | | ☐ | ☐ | ☐ | ☐ |
| **Insulation installation method** | | | | | |
| Has the insulation been installed according to the NCC requirements? | | | ☐ | ☐ | ☐ |
| **Building sealing** | | | | | |
| Does the dwelling meet the NCC requirements for Building Sealing? | | ☐ | ☐ | ☐ | ☐ |
| **Whole of Home performance check** (not applicable if a Whole of Home performance assessment is not conducted) | | | | | |
| **Appliances** | | | | | |
| Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| ***Additional NCC Requirements for Services (not included in the NatHERS assessment)*** | | | | | |
| Does the lighting meet the artificial lighting requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system meet the additional requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| **Provisional values* check** | | | | | |
| Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below? | ☐ | ☐ | | | |

***Other NCC requirements***

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

**Additional notes**

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## Room *schedule*

| Room | Zone Type | Area [m²] |
|---|---|---|
| Kitchen/Living | kitchen | 78.4 |
| Pantry | dayTime | 7 |
| Laundry | dayTime | 5.2 |
| Bedroom 1 | bedroom | 10.6 |
| Ensuite 1 | dayTime | 4.7 |
| Ensuite 2 | dayTime | 4.8 |
| Bedroom 2 | bedroom | 11 |
| Bed 1 entry | dayTime | 1.8 |
| Bed 2 entry | dayTime | 1.8 |
| Living 2 | living | 14.3 |
| Powder rm | unconditioned | 2.1 |
| Bedroom 3 | bedroom | 15.8 |
| Bed 3 WIR/Entry | dayTime | 10.9 |
| Ensuite 3 | nightTime | 8.3 |
| Entry / passage | dayTime | 17.9 |

## 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 |
| THC-010-15 A | Series EC95 TB Sliding Door DG 6mmPerforma-12Ar-4mmClr | 2.74 | 0.25 | 0.24 | 0.26 |
| THC-050-09 A | Series EC75TB Fixed Window DG DG 6mmPerforma-12Ar-6mmClr | 2.08 | 0.26 | 0.25 | 0.27 |
| THC-023-17 B | Series EC35TB Awning Window DG 6mmPerforma-10Ar-6mmClr | 2.24 | 0.23 | 0.22 | 0.24 |

## Window and glazed door *schedule*

| Location | Window ID | Window no. | Height [mm] | Width [mm] | Window type | Opening % | Orientation | Window shading device* |
|---|---|---|---|---|---|---|---|---|
| Kitchen/Living | THC-010-15 A | Opening 25 | 3400 | 5850 | sliding | 45.0 | E | No |
| Kitchen/Living | THC-010-15 A | Opening 23 | 3400 | 2700 | sliding | 45.0 | E | No |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Kitchen/Living | THC-010-15 A | Opening 24 | 3400 | 6740 | sliding | 45.0 | E | No |
| Pantry | THC-050-09 A | Opening 34 | 3400 | 1300 | fixed | 0.0 | E | No |
| Bedroom 1 | THC-023-17 B | Opening 26 | 2650 | 580 | awning | 60.0 | E | No |
| Bedroom 1 | THC-050-09 A | Opening 27 | 2650 | 1500 | fixed | 0.0 | E | No |
| Bedroom 2 | THC-023-17 B | Opening 32 | 2650 | 580 | awning | 60.0 | E | No |
| Bedroom 2 | THC-050-09 A | Opening 33 | 2650 | 1300 | fixed | 0.0 | E | No |
| Living 2 | THC-010-15 A | Opening 31 | 3400 | 2400 | sliding | 66.0 | E | No |
| Bedroom 3 | THC-023-17 B | Opening 28 | 2650 | 1300 | awning | 30.0 | S | No |
| Bedroom 3 | THC-050-09 A | Opening 29 | 2650 | 2600 | fixed | 0.0 | S | No |
| Bedroom 3 | THC-050-09 A | Opening 30 | 2650 | 3000 | fixed | 0.0 | E | No |

## Roof window* *type and performance value*

### Default* roof windows

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

### Custom* roof windows

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

## Roof window* *schedule*

| Location | Window ID | Window no. | Opening % | Area [m²] | Width [mm] | Orientation | Outdoor shade | Indoor shade |
|---|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | | |

## Skylight* *type and performance*

| Skylight ID | Skylight description | Skylight shaft reflectance |
|---|---|---|
| No Data Available | | |

## Skylight* *schedule*

| Location | Skylight ID | Skylight No. | Skylight shaft length [mm] | Area [m²] | Orient-ation | Outdoor shade | Diffuser |
|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | |

## External door *schedule*

| Location | Height [mm] | Width [mm] | Opening % | Orientation |
|---|---|---|---|---|
| No Data Available | | | | |

## External wall *type*

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| Wall ID | Wall type | Solar absorptance | Wall shade [colour] | Bulk insulation [R-value] | Reflective wall wrap* |
|---|---|---|---|---|---|
| 1 | GIW25108 - Externall Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5) | No |
| 2 | GIW25108 - Internal Intertenancy | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 3 | GIW25108 - Internal Plasterboard | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 4 | GIW25108 - Internal Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |

## External wall *schedule*

| Location | Wall ID | Height [mm] | Width [mm] | Orientation | Horizontal shading feature* maximum projection [mm] | Vertical shading feature* (yes/no) |
|---|---|---|---|---|---|---|
| Kitchen/Living | 1 | 3400 | 6461 | N | 104 | Yes |
| Kitchen/Living | 2 | 3400 | 11712 | W | 0 | No |
| Kitchen/Living | 1 | 3400 | 3021 | E | 150 | Yes |
| Kitchen/Living | 1 | 3400 | 8705 | E | 150 | Yes |
| Pantry | 1 | 3400 | 1671 | E | 120 | Yes |
| Pantry | 1 | 3400 | 1392 | E | 120 | Yes |
| Bedroom 1 | 1 | 3400 | 547 | E | 130 | Yes |
| Bedroom 1 | 1 | 3400 | 2313 | E | 130 | Yes |
| Bedroom 1 | 1 | 3400 | 728 | E | 130 | Yes |
| Bedroom 2 | 1 | 3400 | 1038 | S | 0 | Yes |
| Bedroom 2 | 1 | 3400 | 2505 | E | 120 | Yes |
| Bedroom 2 | 1 | 3400 | 1170 | E | 120 | Yes |
| Living 2 | 1 | 3400 | 2663 | E | 0 | Yes |
| Powder rm | 3 | 3400 | 2445 | W | 0 | No |
| Bedroom 3 | 1 | 3400 | 604 | S | 117 | No |
| Bedroom 3 | 1 | 3400 | 4076 | S | 117 | Yes |
| Bedroom 3 | 1 | 3400 | 3385 | E | 131 | Yes |
| Bed 3 WIR/Entry | 3 | 3400 | 2407 | W | 0 | No |
| Bed 3 WIR/Entry | 4 | 3400 | 978 | S | 0 | No |
| Bed 3 WIR/Entry | 4 | 3400 | 2844 | W | 0 | No |
| Bed 3 WIR/Entry | 1 | 3400 | 1625 | S | 0 | No |
| Ensuite 3 | 1 | 3400 | 1775 | E | 131 | No |
| Ensuite 3 | 1 | 3400 | 1026 | N | 0 | Yes |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Entry / passage | 3 | 3400 | 4377 | W | 0 | No |
| Entry / passage | 2 | 3400 | 6445 | W | 0 | No |
| Entry / passage | 2 | 3400 | 1025 | N | 0 | No |

## Internal wall *type*

| Wall ID | Wall type | Area [m²] | Bulk insulation |
|---|---|---|---|
| 1 | FR5 - Internal Plasterboard Stud Wall | 216.8 | |

## Floor *type*

| Location | Construction | Area [m²] | Sub-floor ventilation | Added insulation [R-value] | Covering |
|---|---|---|---|---|---|
| Kitchen/Living | FR5 - 200mm concrete slab | 78.4 | Enclosed | R0.0 | Timber |
| Pantry | FR5 - 200mm concrete slab | 7 | Enclosed | R0.0 | Timber |
| Laundry | FR5 - 200mm concrete slab | 5.2 | Enclosed | R0.0 | Tiles |
| Bedroom 1 | FR5 - 200mm concrete slab | 10.6 | Enclosed | R0.0 | Carpet |
| Ensuite 1 | FR5 - 200mm concrete slab | 4.7 | Enclosed | R0.0 | Tiles |
| Ensuite 2 | FR5 - 200mm concrete slab | 4.8 | Enclosed | R0.0 | Tiles |
| Bedroom 2 | FR5 - 200mm concrete slab | 11 | Enclosed | R0.0 | Carpet |
| Bed 1 entry | FR5 - 200mm concrete slab | 1.8 | Enclosed | R0.0 | Carpet |
| Bed 2 entry | FR5 - 200mm concrete slab | 1.8 | Enclosed | R0.0 | Carpet |
| Living 2 | FR5 - 200mm concrete slab | 14.3 | Enclosed | R0.0 | Timber |
| Powder rm | FR5 - 200mm concrete slab | 2.1 | Enclosed | R0.0 | Tiles |
| Bedroom 3 | FR5 - 200mm concrete slab | 15.8 | Enclosed | R0.0 | Carpet |
| Bed 3 WIR/Entry | FR5 - 200mm concrete slab | 10.9 | Enclosed | R0.0 | Carpet |
| Ensuite 3 | FR5 - 200mm concrete slab | 8.3 | Enclosed | R0.0 | Tiles |
| Entry / passage | FR5 - 200mm concrete slab | 17.9 | Enclosed | R0.0 | Timber |

## Ceiling *type*

| Location | Construction material/type | Bulk insulation R-value [may include edge batt values] | Reflective wrap* |
|---|---|---|---|
| Kitchen/Living | Plasterboard | R3.6 | No |
| Pantry | Plasterboard | R3.6 | No |
| Laundry | Plasterboard | R3.6 | No |
| Bedroom 1 | Plasterboard | R3.6 | No |
| Ensuite 1 | Plasterboard | R3.6 | No |
| Ensuite 2 | Plasterboard | R3.6 | No |
| Bedroom 2 | Plasterboard | R3.6 | No |
| Bed 1 entry | Plasterboard | R3.6 | No |
| Bed 2 entry | Plasterboard | R3.6 | No |
| Living 2 | Plasterboard | R3.6 | No |
| Powder rm | Plasterboard | R3.6 | No |

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| | | | |
|---|---|---|---|
| Bedroom 3 | Plasterboard | R3.6 | No |
| Bed 3 WIR/Entry | Plasterboard | R3.6 | No |
| Ensuite 3 | Plasterboard | R3.6 | No |
| Entry / passage | Plasterboard | R3.6 | No |

## Ceiling *penetrations**

| Location | Quantity | Type | Height [mm] | Width [mm] | Sealed/unsealed |
|---|---|---|---|---|---|
| Kitchen/Living | 31 | Downlights | 80 | 80 | Sealed |
| Kitchen/Living | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Pantry | 3 | Downlights | 80 | 80 | Sealed |
| Laundry | 3 | Downlights | 80 | 80 | Sealed |
| Laundry | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 1 | 4 | Downlights | 80 | 80 | Sealed |
| Ensuite 1 | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite 1 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Ensuite 2 | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite 2 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 2 | 4 | Downlights | 80 | 80 | Sealed |
| Bed 1 entry | 1 | Downlights | 80 | 80 | Sealed |
| Bed 2 entry | 1 | Downlights | 80 | 80 | Sealed |
| Living 2 | 6 | Downlights | 80 | 80 | Sealed |
| Powder rm | 1 | Downlights | 80 | 80 | Sealed |
| Powder rm | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 3 | 6 | Downlights | 80 | 80 | Sealed |
| Bed 3 WIR/Entry | 4 | Downlights | 80 | 80 | Sealed |
| Ensuite 3 | 3 | Downlights | 80 | 80 | Sealed |
| Ensuite 3 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Entry / passage | 8 | Downlights | 80 | 80 | Sealed |

## Ceiling *fans*

| Location | Quantity | Diameter [mm] |
|---|---|---|
| No Data Available | | |

## Roof *type*

| Construction | Added insulation [R-value] | Solar absorptance | Roof shade [colour] |
|---|---|---|---|
| Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab | 0.0 | 0.5 | Medium |

## Thermal bridging *schedule for steel frame elements*

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| Building element | Steel section dimensions [height x width, mm] | Frame spacing [mm] | Steel thickness [BMT,mm] | Thermal break [R-value] |
|---|---|---|---|---|
| No Data Available | | | | |

## Appliance *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

### Cooling system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Heating system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Hot water system

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Hot Water CER Zone | Zone 3 STC | Assessed daily load |
|---|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | | |

### Pool/spa equipment

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | |

## Onsite renewable energy *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Orientation | System size or generation capacity |
|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | |

## Battery *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Size [battery storage capacity] |
|---|---|
| No Whole of Home performance assessment conducted for this certificate. | |

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*Refer to glossary.

# Explanatory Notes

## About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

## Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

## Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

# Glossary

| | |
|---|---|
| **Annual energy load** | the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions. |
| **AFRC** | Australian Fenestration Rating Council |
| **Assessed floor area** | the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents. |
| **Ceiling penetrations** | features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts. |
| **Conditioned** | a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages. |
| **COP** | Coefficient of performance |
| **Custom windows** | windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating. |
| **Default windows** | windows that are representative of a specific type of window product and whose properties have been derived by statistical methods. |
| **EER** | Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input |
| **Energy use** | This is your homes rating without solar or batteries. |
| **Energy value** | The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard). |
| **Entrance door** | these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building. |
| **Exposure category – exposed** | terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors). |
| **Exposure category – open** | terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors). |
| **Exposure category – suburban** | terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas. |
| **Exposure category – protected** | terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas. |
| **Horizontal shading feature** | provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels. |
| **National Construction Code (NCC) Class** | the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au. |
| **Net zero home** | a home that achieves a net zero energy value*. |
| **Opening percentage** | the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations. |
| **Provisional value** | an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au |
| **Recommended capacity** | this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person. |
| **Reflective wrap (also known as foil)** | can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties. |
| **Roof window** | for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser. |
| **Shading features** | includes neighbouring buildings, fences, and wing walls, but excludes eaves. |
| **Solar heat gain coefficient (SHGC)** | the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits. |
| **Skylight (also known as roof lights)** | for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level. |

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| | |
|---|---|
| **STCs** | Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory |
| **Thermal breaks** | are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels. |
| **U-value** | the rate of heat transfer through a window. The lower the U-value, the better the insulating ability. |
| **Unconditioned** | a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions. |
| **Vertical shading features** | provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees). |
| **Window shading device** | a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies) |

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# Nationwide House Energy Rating Scheme® NatHERS® Certificate

**Generated on 7 May 2026 using FirstRate5: 5.5.5a (3.22)**

## Property

| | |
|---|---|
| **Address** | 5.02, 98-104 Riversdale Road , Hawthorn, VIC, 3122 |
| **Lot/DP** | N/A |
| **NCC Class*** | Class 2 |
| **Floor/all Floors Type** | New Home |

## Plans

| | |
|---|---|
| **Main plan** | - |
| **Prepared by** | Tristan Wong Architecture |

## Construction and environment

| **Assessed floor area [m²]*** | | **Exposure type** |
|---|---|---|
| Conditioned* | 157.5 | open |
| Unconditioned* | 5.5 | **NatHERS climate zone** |
| Total | 163 | 62 Moorabbin Airport |
| Garage | - | |

## Accredited assessor

| | |
|---|---|
| **Name** | Gary Wertheimer |
| **Business name** | GIW Environmental Solutions |
| **Email** | gary@giw.com.au |
| **Phone** | 0390445111 |
| **Accreditation No.** | DMN/10/2024 |
| **Assessor Accrediting Organisation** | Design Matters National |
| **Declaration of interest** | No |

## NCC Requirements

| | |
|---|---|
| **NCC provisions** | Volume 1 |
| **State/Territory variation** | Yes |

### National Construction Code (NCC) requirements

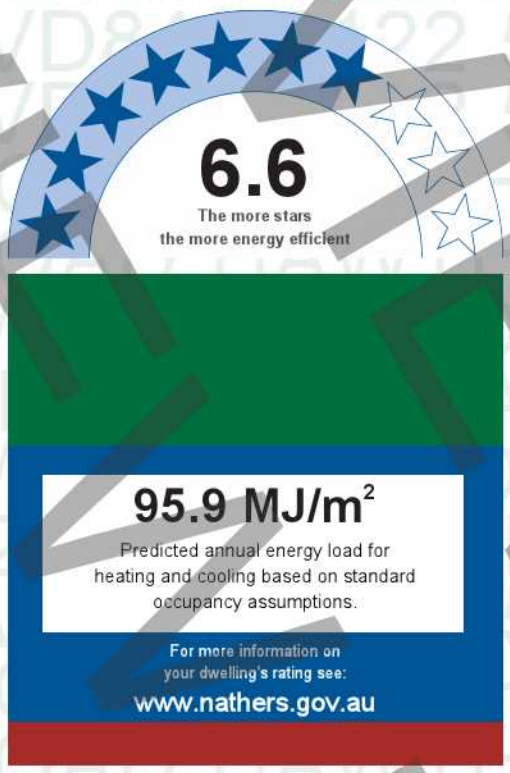
The NCC allows the use of NatHERS accredited software to comply with the energy efficiency requirements for houses (Class 1 buildings) and apartments (Class 2 sole-occupancy units and Class 4 parts of buildings). The applicable requirements for houses are detailed in Specification 42 of NCC Volume Two. For apartments the requirements are detailed in clauses J3D3 and J3D15 of NCC Volume One.

NCC 2022 includes enhanced thermal performance requirements for houses and apartments. It also includes a new whole-of-home annual energy use budget which applies to the major equipment in the home.

The NCC, and associated ABCB Standards and support material, can be accessed at www.abcb.gov.au.

Note, variations and additions to the NCC energy efficiency requirements may apply in some states and territories.

## Thermal performance star rating




## Thermal performance [MJ/m²]

Limits taken from ABCB Standard 2022

| | Heating | Cooling |
|---|---|---|
| **Modelled** | 75.2 | 20.8 |
| **Load limits** | 91 | 28 |

**Features determining load limits**

| | |
|---|---|
| Floor type (lowest conditioned area) | N/A |
| NCC climate zone 1 or 2 | Y |
| Outdoor living area | N/A |
| Outdoor living area ceiling fan | N/A |

## Whole of Home performance rating

No Whole of Home performance rating generated for this certificate

## Verification

To verify this certificate, scan the QR code or visit When using either link, ensure you are visiting www.fr5.com.au

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## About the ratings

### Thermal performance rating

NatHERS thermal software models the expected heating and cooling energy loads using information about the design, construction, climate and common patterns of household use. The thermal performance rating (shown as a star rating on this Certificate) does not take into account appliances, apart from the airflow impacts from ceiling fans.

### Whole of Home performance rating

NatHERS Whole of Home software uses the heating and cooling energy loads combined with the energy performance of the home's appliances (heating, cooling, hot water, lighting, pool/spa pump and onsite renewable energy generation and storage) and models the expected energy value* of the whole home. The Whole of Home performance rating is shown as a score out of 100 on this Certificate.

## Heating & Cooling Load Limits

### Additional information

In some locations under the NCC NatHERS pathway, separate heating and cooling load limits may apply. Minimum required star ratings in northern parts of Australia may also be affected by the presence or absence of an outdoor living area and/or an outdoor living area ceiling fan. Refer to the ABCB NatHERS heating and cooling load limits Standard 2022 for details or contact the relevant local building regulating authority, noting that State and Territory variations may also apply.

### Setting options:

Floor type:

- CSOG – Concrete Slab on Ground
- SF – Suspended Floor (or a mixture of CSOG and SF)
- NA – Not Applicable

NCC climate Zone 1 or 2:

- Yes
- No
- NA – not applicable

Outdoor living area:

- Yes
- No
- NA – not applicable

Outdoor living area ceiling fan:

- Yes
- No
- NA – not applicable

## Predicted onsite renewable energy impact

No Whole of Home performance assessment conducted for this certificate.

## Predicted Whole of Home annual impact by appliance

Shows the contribution each appliance has on the home's annual energy use, greenhouse gas emissions and cost without solar

**Energy use:**

No Whole of Home performance assessment conducted for this certificate.

**Greenhouse gas emissions:**

No Whole of Home performance assessment conducted for this certificate.

**Cost:**

No Whole of Home performance assessment conducted for this certificate.

**Graph key:**

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## Certificate check

The checklist covers important items impacting the dwelling's ratings.
It is recommended that the accuracy of the whole certificate is checked.

Note: The boxes indicate when and who should check each item.
It is not mandatory to complete this checklist.

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| **Genuine certificate check** | | | | | |
| Does this Certificate match the one available at the web address or QR code verification link on the front page? | | ☐ | ☐ | ☐ | ☐ |
| Does the NatHERS certificate number on the NatHERS-stamped plans match the number on this Certificate? | | ☐ | ☐ | ☐ | ☐ |
| **Thermal performance check** | | | | | |
| **Windows and glazed doors** | | | | | |
| Does the window size, opening type and location shown on the NatHERS-stamped plans or as installed match what is shown in *'Window and glazed door schedule'* and *'Roof window schedule'* tables on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the installed windows meet the substitution tolerances (AFRC* based SHGC* and U-values*) as shown in the *'Window and glazed door type and performance'* and *'Roof window type and performance'* tables on this Certificate? | | | ☐ | ☐ | ☐ |
| **External walls** | | | | | |
| Does the external wall bulk insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the External wall type table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the external wall shade (colour) match what is shown in the *'External wall type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Floor** | | | | | |
| Does the floor insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Floor type'* table on this certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling penetrations*** | | | | | |
| Does the *'quantity'* and *'type'* of ceiling penetrations* (e.g. downlights, exhaust fans, etc) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling penetrations'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Ceiling** | | | | | |
| Does the ceiling insulation (R-value) shown on the NatHERS-stamped plans or as installed match what is shown in the *'Ceiling type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Roof** | | | | | |
| Does the external roof shade (colour) on the NatHERS stamped plans or as installed match what is shown in the *'Roof type'* table on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Apartment entrance doors (NCC Class 2 assessments only)** | | | | | |
| 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 type (terrain) (shown on page 1) been applied? For example, it is unlikely that a ground-floor apartment is "exposed" or a top floor high-rise apartment is "protected". | ☐ | ☐ | | ☐ | ☐ |
| **Heating and cooling load limits*** | | | | | |
| Do the load limits settings (shown on page 1) match the values in the ABCB Standard 2022: NAtHERS heating and cooling load limits for the appropriate climate zone? | ☐ | ☐ | ☐ | ☐ | ☐ |

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## Certificate check

Continued

| | Approval stage | | Construction stage | | |
|---|---|---|---|---|---|
| | Assessor checked | Consent authority/ surveyor checked | Builder checked | Consent authority/ surveyor checked | Occupancy/other |
| ***Additional NCC requirements for thermal performance (not included in the NatHERS assessment)*** | | | | | |
| **Thermal bridging** | | | | | |
| Does the dwelling meet the NCC requirement for thermal bridging? | | ☐ | ☐ | ☐ | ☐ |
| **Insulation installation method** | | | | | |
| Has the insulation been installed according to the NCC requirements? | | | ☐ | ☐ | ☐ |
| **Building sealing** | | | | | |
| Does the dwelling meet the NCC requirements for Building Sealing? | | ☐ | ☐ | ☐ | ☐ |
| **Whole of Home performance check** (not applicable if a Whole of Home performance assessment is not conducted) | | | | | |
| **Appliances** | | | | | |
| Does the cooling appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the Appliance schedule on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the heating appliance/s type, location and efficiency/performance shown on the NatHERS-stamped plans or installed, match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system type and efficiency/performance shown on the NatHERS-stamped plans or as installed match the location and minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the pool pump efficiency/performance shown on the NatHERS-stamped plans or as installed match the minimum efficiency/performance requirements shown in the *'Appliance schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| Does the onsite renewable energy system type, orientation and system size or generation capacity shown on the NatHERS stamped plans or installed match the *'Onsite Renewable Energy schedule'* on this Certificate? | ☐ | ☐ | ☐ | ☐ | ☐ |
| ***Additional NCC Requirements for Services (not included in the NatHERS assessment)*** | | | | | |
| Does the lighting meet the artificial lighting requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| Does the hot water system meet the additional requirements specified in the NCC? | | ☐ | ☐ | ☐ | ☐ |
| **Provisional values* check** | | | | | |
| Have provisional values* been used in the assessment and, if so, are they noted in *'Additional notes'* table below? | ☐ | ☐ | | | |

***Other NCC requirements***

Note: This Certificate only covers the energy efficiency requirements in the NCC. Additional requirements that must also be satisfied include, but are not limited to: condensation, structural and fire safety requirements and any state or territory variations to the NCC energy efficiency requirements.

**Additional notes**

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## Room *schedule*

| Room | Zone Type | Area [m²] |
|---|---|---|
| Bedroom 1 | bedroom | 11.8 |
| Bed 1 entry | dayTime | 2.9 |
| WIR | nightTime | 7.1 |
| Ensuite | nightTime | 10.1 |
| Kitchen/Living 5 | kitchen | 59.6 |
| Pantry | dayTime | 8.3 |
| Laundry | dayTime | 5.8 |
| Bedroom 2 | bedroom | 12.6 |
| ENtry/Passage | dayTime | 19.3 |
| Bathroom | unconditioned | 5.5 |
| Ensuite 2 | nightTime | 5.3 |
| Bedroom 3 | bedroom | 14.7 |

## 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 |
| THC-023-17 B | Series EC35TB Awning Window DG 6mmPerforma-10Ar-6mmClr | 2.24 | 0.23 | 0.22 | 0.24 |
| THC-050-09 A | Series EC75TB Fixed Window DG DG 6mmPerforma-12Ar-6mmClr | 2.08 | 0.26 | 0.25 | 0.27 |
| THC-010-15 A | Series EC95 TB Sliding Door DG 6mmPerforma-12Ar-4mmClr | 2.74 | 0.25 | 0.24 | 0.26 |

## Window and glazed door *schedule*

| Location | Window ID | Window no. | Height [mm] | Width [mm] | Window type | Opening % | Orientation | Window shading device* |
|---|---|---|---|---|---|---|---|---|
| Bedroom 1 | THC-023-17 B | Opening 1 | 2650 | 950 | awning | 60.0 | N | No |
| Bedroom 1 | THC-050-09 A | Opening 2 | 2650 | 1970 | fixed | 0.0 | N | No |
| Kitchen/Living 5 | THC-010-15 A | Opening 3 | 3400 | 4600 | sliding | 45.0 | N | No |
| Kitchen/Living 5 | THC-010-15 A | Opening 6 | 3400 | 5000 | sliding | 60.0 | W | No |
| Kitchen/Living 5 | THC-050-09 A | Opening 7 | 3400 | 2420 | fixed | 0.0 | W | No |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Kitchen/Living 5 | THC-010-15 A | Opening 8 | 3400 | 5000 | sliding | 66.0 | W | No |
| Bedroom 2 | THC-010-15 A | Opening 10 | 2650 | 2300 | sliding | 45.0 | W | No |
| Bedroom 3 | THC-010-15 A | Opening 12 | 2650 | 2580 | sliding | 66.0 | 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] | Width [mm] | Orientation | Outdoor shade | Indoor shade |
|---|---|---|---|---|---|---|---|---|
| No Data Available | | | | | | | | |

## Skylight* *type and performance*

| Skylight ID | Skylight description | Skylight shaft reflectance |
|---|---|---|
| No Data Available | | |

## Skylight* *schedule*

| Location | Skylight ID | Skylight No. | Skylight shaft length [mm] | Area [m²] | Orient-ation | Outdoor shade | Diffuser |
|---|---|---|---|---|---|---|---|
| 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 | GIW25108 - Internal Intertenancy | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8);Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |

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| | | | | | |
|---|---|---|---|---|---|
| 2 | GIW25108 - Externall Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5) | No |
| 3 | GIW25108 - Internal Concrete Wall | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | No |
| 4 | GIW25108 - Internal Plasterboard | 0.5 | Medium | Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8) | 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 | 3400 | 3754 | E | 0 | No |
| Bedroom 1 | 2 | 3400 | 3160 | N | 161 | Yes |
| Bed 1 entry | 1 | 3400 | 1178 | E | 0 | No |
| WIR | 1 | 3400 | 2868 | E | 0 | No |
| Ensuite | 1 | 3400 | 4181 | E | 0 | No |
| Kitchen/Living 5 | 2 | 3400 | 5206 | N | 186 | Yes |
| Kitchen/Living 5 | 2 | 3400 | 5424 | W | 197 | Yes |
| Kitchen/Living 5 | 2 | 3400 | 2867 | W | 197 | Yes |
| Kitchen/Living 5 | 2 | 3400 | 5356 | W | 197 | Yes |
| Bedroom 2 | 2 | 3400 | 550 | W | 193 | Yes |
| Bedroom 2 | 2 | 3400 | 2393 | W | 193 | Yes |
| ENtry/Passage | 3 | 3400 | 1264 | S | 0 | No |
| ENtry/Passage | 4 | 3400 | 2654 | S | 0 | No |
| ENtry/Passage | 1 | 3400 | 5582 | E | 0 | No |
| Ensuite 2 | 2 | 3400 | 1887 | W | 196 | Yes |
| Bedroom 3 | 3 | 3400 | 3635 | E | 0 | No |
| Bedroom 3 | 2 | 3400 | 2956 | W | 193 | Yes |
| Bedroom 3 | 2 | 3400 | 426 | S | 0 | Yes |
| Bedroom 3 | 3 | 3400 | 4168 | S | 0 | No |

## Internal wall *type*

| Wall ID | Wall type | Area [m²] | Bulk insulation |
|---|---|---|---|
| 1 | FR5 - Internal Plasterboard Stud Wall | 205.2 | |

## Floor *type*

| Location | Construction | Area [m²] | Sub-floor ventilation | Added insulation [R-value] | Covering |
|---|---|---|---|---|---|
| Bedroom 1 | FR5 - 200mm concrete slab | 11.6 | Enclosed | R0.0 | Carpet |
| Bed 1 entry | FR5 - 200mm concrete slab | 2.9 | Enclosed | R0.0 | Carpet |

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*Refer to glossary.

| | | | | | |
|---|---|---|---|---|---|
| WIR | FR5 - 200mm concrete slab | 7.1 | Enclosed | R0.0 | Carpet |
| Ensuite | FR5 - 200mm concrete slab | 10.1 | Enclosed | R0.0 | Tiles |
| Kitchen/Living 5 | FR5 - 200mm concrete slab | 59.6 | Enclosed | R0.0 | Timber |
| Pantry | FR5 - 200mm concrete slab | 8.3 | Enclosed | R0.0 | Timber |
| Laundry | FR5 - 200mm concrete slab | 5.8 | Enclosed | R0.0 | Tiles |
| Bedroom 2 | FR5 - 200mm concrete slab | 12.6 | Enclosed | R0.0 | Carpet |
| ENtry/Passage | FR5 - 200mm concrete slab | 19.3 | Enclosed | R0.0 | Timber |
| Bathroom | FR5 - 200mm concrete slab | 5.5 | Enclosed | R0.0 | Tiles |
| Ensuite 2 | FR5 - 200mm concrete slab | 5.3 | Enclosed | R0.0 | Tiles |
| Bedroom 3 | FR5 - 200mm concrete slab | 14.7 | Enclosed | R0.0 | Carpet |

## Ceiling *type*

| Location | Construction material/type | Bulk insulation R-value [may include edge batt values] | Reflective wrap* |
|---|---|---|---|
| Bedroom 1 | Plasterboard | R3.6 | No |
| Bed 1 entry | Plasterboard | R3.6 | No |
| WIR | Plasterboard | R3.6 | No |
| Ensuite | Plasterboard | R3.6 | No |
| Kitchen/Living 5 | Plasterboard | R3.6 | No |
| Pantry | Plasterboard | R3.6 | No |
| Laundry | Plasterboard | R3.6 | No |
| Bedroom 2 | Plasterboard | R3.6 | No |
| ENtry/Passage | Plasterboard | R3.6 | No |
| Bathroom | Plasterboard | R3.6 | No |
| Ensuite 2 | Plasterboard | R3.6 | No |
| Bedroom 3 | Plasterboard | R3.6 | No |

## Ceiling *penetrations**

| Location | Quantity | Type | Height [mm] | Width [mm] | Sealed/unsealed |
|---|---|---|---|---|---|
| Bedroom 1 | 5 | Downlights | 80 | 80 | Sealed |
| Bed 1 entry | 1 | Downlights | 80 | 80 | Sealed |
| WIR | 2 | Downlights | 80 | 80 | Sealed |
| Ensuite | 4 | Downlights | 80 | 80 | Sealed |
| Ensuite | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Kitchen/Living 5 | 24 | Downlights | 80 | 80 | Sealed |
| Kitchen/Living 5 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Pantry | 3 | Downlights | 80 | 80 | Sealed |
| Laundry | 2 | Downlights | 80 | 80 | Sealed |
| Laundry | 1 | Exhaust Fans | 250 | 250 | Sealed |

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| | | | | | |
|---|---|---|---|---|---|
| Bedroom 2 | 5 | Downlights | 80 | 80 | Sealed |
| ENtry/Passage | 8 | Downlights | 80 | 80 | Sealed |
| Bathroom | 2 | Downlights | 80 | 80 | Sealed |
| Bathroom | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Ensuite 2 | 2 | Downlights | 80 | 80 | Sealed |
| Ensuite 2 | 1 | Exhaust Fans | 250 | 250 | Sealed |
| Bedroom 3 | 6 | Downlights | 80 | 80 | Sealed |

## Ceiling *fans*

| Location | Quantity | Diameter [mm] |
|---|---|---|
| No Data Available | | |

## Roof *type*

| Construction | Added insulation [R-value] | Solar absorptance | Roof shade [colour] |
|---|---|---|---|
| Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab | 0.0 | 0.4 | Medium |

## Thermal bridging *schedule for steel frame elements*

| Building element | Steel section dimensions [height x width, mm] | Frame spacing [mm] | Steel thickness [BMT,mm] | Thermal break [R-value] |
|---|---|---|---|---|
| No Data Available | | | | |

## Appliance *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

Note: A flat assumption of 5W/m2 is used for lighting, therefore lighting is not included in the appliance schedule.

### Cooling system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Heating system

| Appliance/ system type | Location | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | |

### Hot water system

| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Hot Water CER Zone | Zone 3 STC | Assessed daily load |
|---|---|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | | | |

### Pool/spa equipment

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| Appliance/ system type | Fuel type | Minimum efficiency/ performance | Recommended capacity |
|---|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | | |

## Onsite renewable energy *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Orientation | System size or generation capacity |
|---|---|---|
| No Whole of Home performance assessment conducted for this certificate. | | |

## Battery *schedule*

**(not applicable if a Whole of Home performance assessment is not conducted for this certificate)**

| System type | Size [battery storage capacity] |
|---|---|
| No Whole of Home performance assessment conducted for this certificate. | |

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# Explanatory Notes

## About this report

NatHERS ratings are a reliable guide for comparing different dwelling designs and to demonstrate that designs meet the energy efficiency requirements in the National Construction Code.

NatHERS ratings use computer modelling to evaluate a home's energy efficiency and performance. They use localised climate data and standard assumptions on how people use their home to predict the heating and cooling energy loads and energy value* of the whole home. The thermal performance star rating uses the home's building specifications, layout, orientation and fabric (i.e. walls, windows, floors, roofs and ceilings) to predict the heating and cooling energy loads. The Whole of Home performance rating uses information about the home's appliances and onsite energy generation and storage to estimate the homes energy value*.

The actual energy loads, cost and greenhouse gas emissions of a home may vary from that predicted. This is because the assumptions will not always match the actual occupant usage patterns. For example, the number of occupants and how people use their appliances will vary. Energy efficient homes use less energy, are warmer on cool days, cooler on hot days and cost less to run.

## Accredited assessors

For quality assured NatHERS Certificates, always use an accredited or licenced assessor registered with an Assessor Accrediting Organisation (AAO). AAOs have strict quality assurance processes, and professional development requirements ensuring consistently high standards for assessments.

Non-accredited assessors (Raters) have no ongoing training requirements and are not quality assured.

Any queries about this report should be directed to the assessor. If the assessor is unable to address questions or concerns, contact the AAO specified on the front of this certificate.

## Disclaimer

The NatHERS Certificate format is developed by the NatHERS Administrator. However, the content in the certificate is entered by the assessor. It is the assessor's responsibility to use NatHERS accredited software correctly and follow the NatHERS Technical Note to produce a NatHERS Certificate.

The predicted annual energy load, cost and greenhouse gas emissions in this NatHERS Certificate are an estimate based on an assessment of the dwelling's design by the assessor. It is not a prediction of actual energy use, cost or emissions. The information and ratings may be used to compare how other dwellings 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, behaviour, appliance performance, indoor air temperature and local climate.

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

# Glossary

| | |
|---|---|
| **Annual energy load** | the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions. |
| **AFRC** | Australian Fenestration Rating Council |
| **Assessed floor area** | the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents. |
| **Ceiling penetrations** | features that require a penetration to the ceiling, including downlights, vents, exhaust fans, range hoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts. |
| **Conditioned** | a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages. |
| **COP** | Coefficient of performance |
| **Custom windows** | windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating. |
| **Default windows** | windows that are representative of a specific type of window product and whose properties have been derived by statistical methods. |
| **EER** | Energy Efficiency Ratio, measure of how much cooling can be achieved by an air conditioner for a single kWh of electricity input |
| **Energy use** | This is your homes rating without solar or batteries. |
| **Energy value** | The net cost to society including, but not limited to, costs to the building user, the environment and energy networks (as defined in the ABCB Housing Provisions Standard). |
| **Entrance door** | these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building. |
| **Exposure category – exposed** | terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors). |
| **Exposure category – open** | terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors). |
| **Exposure category – suburban** | terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas. |
| **Exposure category – protected** | terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas. |
| **Horizontal shading feature** | provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels. |
| **National Construction Code (NCC) Class** | the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au. |
| **Net zero home** | a home that achieves a net zero energy value*. |
| **Opening percentage** | the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations. |
| **Provisional value** | an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au |
| **Recommended capacity** | this is the capacity or size of equipment that is recommended by NatHERS to achieve the desired comfort conditions in the zone or zones serviced. This is a recommendation and the final selection sizing should be confirmed by a suitably qualified person. |
| **Reflective wrap (also known as foil)** | can be applied to walls, roofs and ceilings. When combined with an appropriate air gap and emissivity value, it provides insulative properties. |
| **Roof window** | for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser. |
| **Shading features** | includes neighbouring buildings, fences, and wing walls, but excludes eaves. |
| **Solar heat gain coefficient (SHGC)** | the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits. |
| **Skylight (also known as roof lights)** | for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level. |

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| | |
|---|---|
| **STCs** | Small-scale Technology Certificates, certificates created by the REC registry for renewable energy technologies that may be bought and sold as part of the Small-scale Renewable Energy Scheme operated by the Clean Energy Regulatory |
| **Thermal breaks** | are materials with an R-value greater than or equal to 0.2 that must separate the metal frame from the cladding. This includes, but is not limited to, materials such as timber battens greater than or equal to 20mm thick, continuous thermal breaks such as polystyrene insulation sheeting, plastic strips or furring channels. |
| **U-value** | the rate of heat transfer through a window. The lower the U-value, the better the insulating ability. |
| **Unconditioned** | a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions. |
| **Vertical shading features** | provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees). |
| **Window shading device** | a device fixed to windows that provides shading e.g. window awnings or screens but excludes horizontal* or vertical shading features* (eg eaves and balconies) |

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# Appendix C: Part J4D6 Façade Calculation

## J4D6 Façade Calculator

| | |
|---|---|
| Address | 98-106 Riversdale Road, Hawthorn |
| Climate Zone | 6 |
| Building Classification | Class 5 |
| Level | Ground and Level 1 |

| | North | East | South | West | Internal |
|---|---|---|---|---|---|
| Façade area (m2) | 113.8 | 156.3 | 115.4 | 148.4 | 0.0 |

Number of Rows 42

| | | Dimensions | | | Shading (m) | |
|---|---|---|---|---|---|---|
| Window No. | Orientation | Height (m) | Width (m) | Area (m2) | P | H |
| 1 | NORTH | 1.41 | 0.66 | 0.93 | 4.9 | 1.2 |
| 2 | NORTH | 2.30 | 0.52 | 1.21 | 3.53 | 1.74 |
| 3 | NORTH | 2.30 | 1.84 | 4.23 | 1.66 | 1.74 |
| 4 | EAST | 2.30 | 0.58 | 1.34 | 2.35 | 1.74 |
| 5 | NORTH | 2.30 | 1.08 | 2.48 | 1.66 | 1.74 |
| 6 | NORTH | 2.30 | 1.11 | 2.56 | 1.66 | 1.74 |
| 7 | NORTH | 1.77 | 1.41 | 2.50 | 2.07 | 1.74 |
| 8 | EAST | 2.40 | 0.97 | 2.33 | 0.4 | 2.4 |
| 9 | EAST | 1.95 | 0.93 | 1.80 | 0.4 | 2.4 |
| 10 | EAST | 1.08 | 0.59 | 0.64 | 0.4 | 1.8 |
| 11 | EAST | 1.08 | 0.60 | 0.64 | 0.4 | 1.8 |
| 12 | EAST | 1.08 | 0.55 | 0.59 | 0.4 | 1.8 |
| 13 | SOUTH | 3.07 | 1.57 | 4.83 | 0.58 | 2.8 |
| 14 | SOUTH | 2.36 | 1.11 | 2.63 | 0.58 | 2.8 |
| 15 | SOUTH | 2.36 | 1.13 | 2.67 | 0.58 | 2.8 |
| 16 | SOUTH | 1.50 | 0.97 | 1.45 | 0.36 | 4.85 |
| 17 | EAST | 1.50 | 0.67 | 1.00 | 0.36 | 1.5 |
| 18 | EAST | 1.50 | 1.00 | 1.50 | 0.36 | 1.5 |
| 19 | WEST | 1.64 | 0.93 | 1.53 | 0.34 | 1.66 |
| 20 | WEST | 1.64 | 1.26 | 2.06 | 0.34 | 1.66 |
| 21 | WEST | 1.64 | 0.62 | 1.02 | 0.34 | 1.66 |
| 22 | WEST | 1.64 | 0.74 | 1.21 | 0.34 | 2.46 |
| 23 | WEST | 3.12 | 0.62 | 1.92 | 0.9 | 5.15 |
| 24 | WEST | 3.12 | 1.06 | 3.30 | 0.39 | 5.7 |
| 25 | NORTH | 3.12 | 0.77 | 2.39 | 0.9 | 4.4 |
| 26 | WEST | 3.12 | 0.99 | 3.09 | 1.88 | 2.5 |
| 27 | WEST | 1.64 | 1.15 | 1.89 | 1.88 | 1.2 |
| 28 | SOUTH | 1.29 | 1.79 | 2.31 | 0.43 | 2.08 |
| 29 | SOUTH | 1.62 | 0.76 | 1.24 | 0.43 | 2.85 |
| 30 | SOUTH | 1.62 | 0.75 | 1.22 | 0.43 | 3.36 |
| 31 | North | 1.47 | 0.7 | 1.03 | 0.6 | 1.72 |
| 32 | North | 1.47 | 0.7 | 1.03 | 0.6 | 2.33 |
| 33 | East | 1.47 | 0.7 | 1.03 | 1.4 | 2.21 |
| 34 | North | 1.1 | 0.66 | 0.73 | 1.25 | 2.21 |
| 35 | North | 1.1 | 0.66 | 0.73 | 1.25 | 2.21 |
| 36 | North | 1.47 | 0.7 | 1.03 | 1.4 | 3.21 |
| 37 | North | 1.47 | 0.7 | 1.03 | 0.6 | 2.33 |
| 38 | East | 1.47 | 0.7 | 1.03 | 0.6 | 1.72 |
| 39 | North | 0.9 | 1.2 | 1.08 | 0.6 | 1.8 |
| 40 | South | 1.52 | 0.96 | 1.46 | 0.768 | 3.4 |
| 41 | West | 0.73 | 0.95 | 0.69 | 0.3 | 0.73 |
| 42 | South | 1.5 | 0.96 | 1.44 | 0.578 | 2.83 |

**RESULTS**

| Method 1 | U-Value | SHGC | Min. Wall R-values |
|---|---|---|---|
| North | 5.96 | 0.87 | 1 |
| East | 7.50 | 0.87 | 1.4 |
| South | 7.50 | 0.82 | 1.4 |
| West | 7.50 | 0.87 | 1.4 |
| Internal | 7.50 | | 1.4 |

| | U-Value | SHGC |
|---|---|---|
| Method 2 | 7.50 | 0.87 |

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## Appendix D: Renewable Energy

RESULTS

Print Results

**13,095 kWh/Year***

| Month | Solar Radiation ( kWh / m$^2$ / day ) | AC Energy ( kWh ) |
|---|---|---|
| January | 7.07 | 1,638 |
| February | 6.73 | 1,431 |
| March | 5.42 | 1,308 |
| April | 3.90 | 910 |
| May | 2.56 | 635 |
| June | 2.39 | 582 |
| July | 2.16 | 546 |
| August | 3.11 | 781 |
| September | 4.48 | 1,077 |
| October | 5.45 | 1,312 |
| November | 5.77 | 1,332 |
| December | 6.68 | 1,544 |
| Annual | 4.64 | 13,096 |

| Location and Station Identification | |
|---|---|
| Requested Location | 98 riversdale hawthorn melbourne |
| Solar Resource Data Location | NSRDB Lat/Lng: -37.83, 145.02 |
| Latitude | 37.83° S |
| Longitude | 145.02° E |
| **PV System Specifications** | |
| DC System Size | 10 kW |
| Module Type | Standard |
| Array Type | Fixed (open rack) |
| System Losses | 14.08% |
| Array Tilt | 10° |
| Array Azimuth | 0° |
| DC to AC Size Ratio | 1.2 |
| Inverter Efficiency | 96% |
| Ground Coverage Ratio | 0.4 |
| Albedo | *From weather file* |
| Bifacial | No (0) |
| Monthly Irradiance Loss | Jan 0% Feb 0% Mar 0% Apr 0% May 0% June 0% July 0% Aug 0% Sept 0% Oct 0% Nov 0% Dec 0% |
| **Performance Metrics** | |
| DC Capacity Factor | 14.9% |

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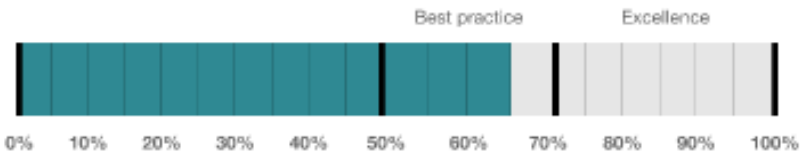
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## Appendix E: BESS Assessment

This BESS report outlines the sustainable design commitments of the proposed development at 98 Riversdale Rd Hawthorn Victoria 3122. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Boroondara City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

**Your BESS Score**

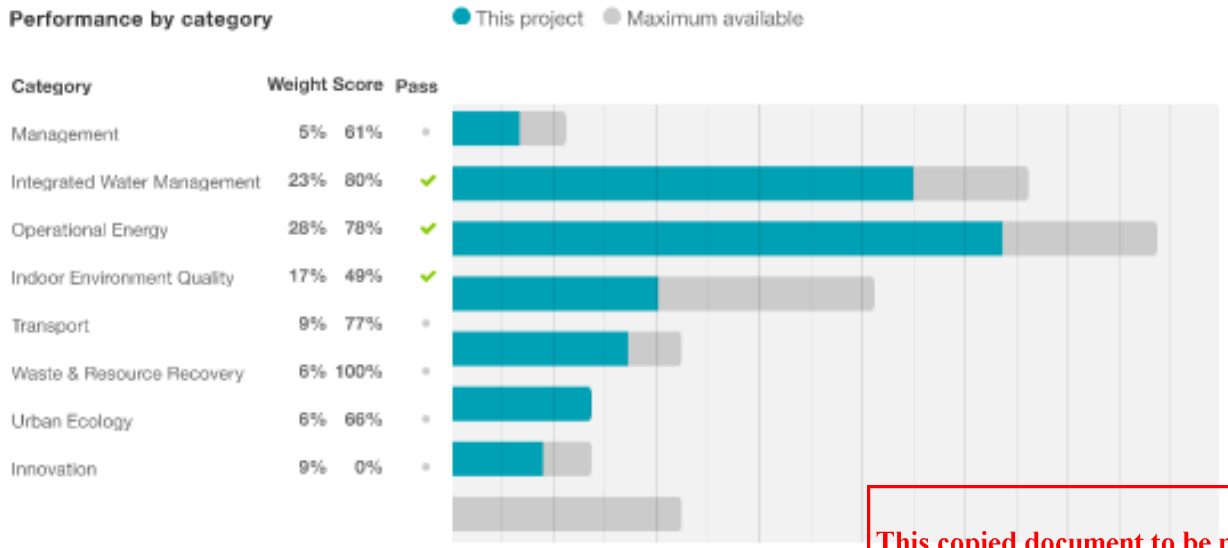



**66%**

**Project details**

| | |
|---|---|
| Name | 98-104 Riversdale Road, Hawthorn |
| Address | 98 Riversdale Rd Hawthorn Victoria 3122 |
| Project ID | F5C7EDD8-R1 |
| BESS Version | BESS-10 |
| Date | 08 May 2026 |
| Software version | 2.3.0-B.652 |
| Site type | Mixed use development |
| Account | info@giw.com.au |
| Application no. | |
| Site area | 3,356 m² |
| Building floor area | 6,732 m² |

**Performance by category**




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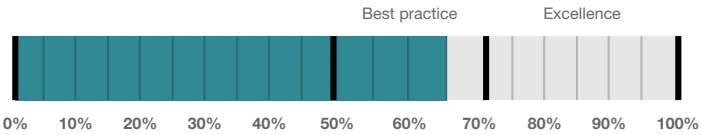
# BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 98 Riversdale Rd Hawthorn Victoria 3122. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Boroondara City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

## Your BESS Score

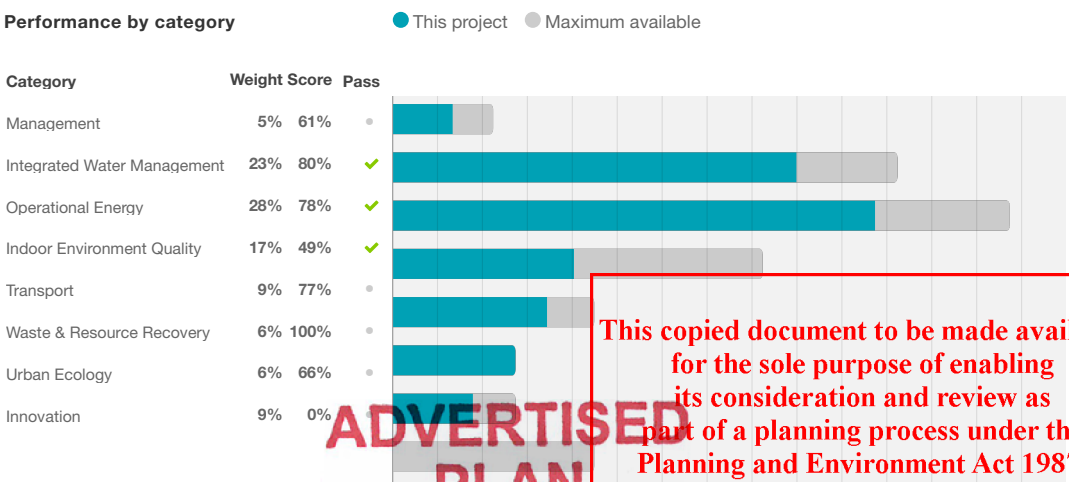



**66%**

## Project details

| | |
|---|---|
| **Name** | 98-104 Riversdale Road, Hawthorn |
| **Address** | 98 Riversdale Rd Hawthorn Victoria 3122 |
| **Project ID** | F5C7EDD8-R1 |
| **BESS Version** | BESS-10 |
| **Date** | 08 May 2026 |
| **Software version** | 2.3.0-B.652 |
| **Site type** | Mixed use development |
| **Account** | info@giw.com.au |
| **Application no.** | |
| **Site area** | 3,356 m² |
| **Building floor area** | 6,732 m² |

## Performance by category




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## Buildings

| Name | Height | Footprint | % of total footprint |
|---|---|---|---|
| Apartments | 6 | 1,221 m² | 74% |
| Medical centre | 2 | 418 m² | 25% |

## Dwellings & Non Res Spaces

### Dwellings

| Name | Quantity | Area | Building | % of total area |
|---|---|---|---|---|
| **Apartment** | | | | |
| G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05 | 10 | 106 m² | Apartments | 15% |
| 1.01 1.02, 2.01 & 2.02 | 4 | 169 m² | Apartments | 10% |
| G.06, 1.07 & 2.07 | 3 | 181 m² | Apartments | 8% |
| G.04, 1.04, 2.04 | 3 | 145 m² | Apartments | 6% |
| G.01 & G.02 | 2 | 179 m² | Apartments | 5% |
| LG.01 & 02 | 2 | 186 m² | Apartments | 5% |
| 1.05 & 2.05 | 2 | 156 m² | Apartments | 4% |
| 5.01 | 1 | 228 m² | Apartments | 3% |
| 4.01 | 1 | 231 m² | Apartments | 3% |
| LG.03 | 1 | 207 m² | Apartments | 3% |
| 1.06 & 2.06 | 2 | 85.9 m² | Apartments | 2% |
| LG.05, & LG.06 | 2 | 100 m² | Apartments | 2% |
| 5.02 | 1 | 189 m² | Apartments | 2% |
| 4.03 | 1 | 195 m² | Apartments | 2% |
| 4.02 | 1 | 173 m² | Apartments | 2% |
| 3.04 | 1 | 176 m² | Apartments | 2% |
| 3.03 | 1 | 182 m² | Apartments | 2% |
| 3.02 | 1 | 193 m² | Apartments | 2% |
| 3.01 | 1 | 170 m² | Apartments | 2% |
| G.05 | 1 | 122 m² | Apartments | 1% |
| LG.04 | 1 | 127 m² | Apartments | 1% |
| **Total** | **42** | **6,314 m²** | **93%** | |

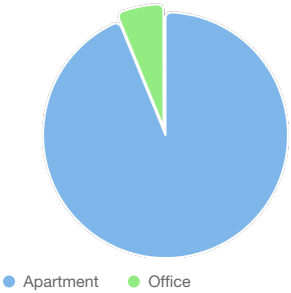
### Non-Res Spaces

| Name | Quantity | Area | Building | % of total area |
|---|---|---|---|---|
| **Office** | | | | |
| Medical Centre | 1 | 418 m² | Medical centre | 6% |
| **Total** | **1** | **418 m²** | **6%** | |

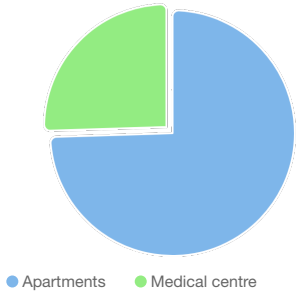
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**Project composition**




**Building composition**




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## Supporting Evidence

### Shown on Floor Plans

| Credit | Requirement | Response | Status |
|---|---|---|---|
| Management 3.1 | Annotation: Individual utility meters to be provided to all individual dwellings | | - |
| Management 3.2 | Annotation: Individual utility meters to be provided to all individual commercial tenancies | | - |
| Management 3.3 | Annotation: Sub-meters to be provided to all major common area services (list each) | | - |
| Integrated Water Management 2.1 | Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips) | | - |
| Operational Energy 4.2 | Location and size of solar photovoltaic system | | - |
| Transport 1.1 | Location of residential bicycle parking spaces | | - |
| Transport 1.2 | Location of residential visitor bicycle parking spaces | | - |
| Transport 1.3 | Residential bicycle parking spaces at ground level | | - |
| Transport 1.4 | Location of non-residential bicycle parking spaces | | - |
| Transport 1.5 | Location of non-residential visitor bicycle parking spaces | | - |
| Transport 1.6 | Location of showers, change rooms and lockers as nominated | | - |
| Transport 2.1 | Location of electric vehicle charging infrastructure | | - |
| Waste & Resource Recovery 2.1 | Location of food and garden waste facilities | | - |
| Waste & Resource Recovery 2.2 | Location of recycling facilities | | - |
| Urban Ecology 1.1 | Location and size of communal spaces | | - |
| Urban Ecology 2.1 | Location and size of vegetated areas | | - |
| Urban Ecology 2.2 | Location and size of green roof | | - |

### Supporting Documentation

| Credit | Requirement | Response | Status |
|---|---|---|---|
| Management 2.2 | Preliminary NatHERS assessments | | - |
| Management 2.3a | Section J glazing assessment | | - |
| Integrated Water Management 2.1 | STORM report or MUSIC model | | - |
| Operational Energy 1.1 | Energy Report showing calculations of reference case and proposed buildings | | - |
| Operational Energy 3.6 | Average lighting power density and lighting type(s) to be used | | - |

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| Credit | Requirement | Response | Status |
|---|---|---|---|
| Operational Energy 3.7 | Average lighting power density and lighting type(s) to be used | | - |
| Operational Energy 4.2 | Specifications of the solar photovoltaic system(s) | | - |
| Indoor Environment Quality 1.1 | If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved. | | - |
| Indoor Environment Quality 1.2 | If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved. | | - |
| Indoor Environment Quality 1.4 | A short report detailing assumptions used and results achieved. | | - |
| Waste & Resource Recovery 1.1 | Details regarding how the existing building is being reused on-site | | - |

## Credit summary

**Management** Overall contribution 4.5%

**61%**

| | |
|---|---|
| 1.1 Pre-Application Meeting | 0% |
| 2.2 Thermal Performance Modelling - Multi-Dwelling Residential | 100% |
| 2.3 Thermal Performance Modelling - Non-Residential | 50% |
| 3.1 Metering - Residential | 100% |
| 3.2 Metering - Non-Residential | 100% |
| 3.3 Metering - Common Areas | 100% |
| 4.1 Building Users Guide | 100% |

**IWM** Overall contribution 22.5%

**80%** ✔ **Pass**

| | | |
|---|---|---|
| 1.1 Potable Water Use | 40% | ✔ Achieved |
| 2.1 Stormwater Treatment | 100% | ✔ Achieved |
| 3.1 Water Efficient Landscaping | N/A | Scoped Out |
| | | Irrigation provided currently. |
| 4.1 Building Systems Water Use | 100% | |

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## Operational Energy Overall contribution 27.5%

| | Minimum required 50% | 78% | ✔ Pass |
|---|---|---|---|
| 1.1 Thermal Performance Rating - Non-Residential | | 12% | |
| 1.2 Thermal Performance Rating - Residential | | 50% | ✔ Achieved |
| 2.1 Greenhouse Gas Emissions | | 78% | |
| 2.2 Peak Demand | | 0% | |
| 2.6 Electrification | | 100% | |
| 2.7 Energy consumption | | 100% | |
| 3.1 Carpark Ventilation | | N/A | ✣ Scoped Out |
| | | More than 40 car parking spaces | |
| 3.2 Hot Water - Non-Residential | | 100% | |
| 3.4 Clothes Drying | | 0% | |
| 3.6 Internal Lighting - Apartments | | 100% | |
| 3.7 Internal Lighting - Non-Residential | | 100% | |
| 4.1 Combined Heat and Power (cogeneration / trigeneration) | | N/A | ✣ Scoped Out |
| | | No cogeneration or trigeneration system in use. | |
| 4.2 Renewable Energy Systems - Solar | | 93% | |
| 4.4 Renewable Energy Systems - Other | | N/A | ✣ Scoped Out |
| | | No other (non-solar PV) renewable energy is in use. | |

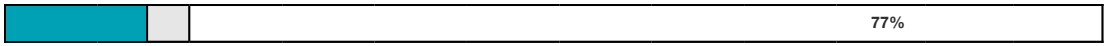
## IEQ Overall contribution 16.5%

| | Minimum required 50% | 49% | ✔ Pass |
|---|---|---|---|
| 1.1 Daylight Access - Living Areas | | 66% | ✔ Achieved |
| 1.2 Daylight Access - Bedrooms | | 100% | ✔ Achieved |
| 1.3 Winter Sunlight | | 0% | |
| 1.4 Daylight Access - Non-Residential | | 33% | ✔ Achieved |
| 1.5 Daylight Access - Main Living Areas | | N/A | ✣ Scoped Out |
| | | Spatial daylight autonomy metric not in use | |
| 1.6 Daylight Access - Secondary Habitable Rooms | | N/A | ✣ Scoped Out |
| | | Spatial daylight autonomy metric not in use | |
| 2.1 Ventilation - Natural - Apartments | | 0% | |
| 2.3 Ventilation - Non-Residential | | 33% | ✔ Achieved |
| 3.4 Thermal comfort - Shading - Non-Residential | | 100% | |
| 3.5 Thermal Comfort - Ceiling Fans - Non-Residential | | 0% | |
| 4.1 Air Quality - Non-Residential | | 100% | |

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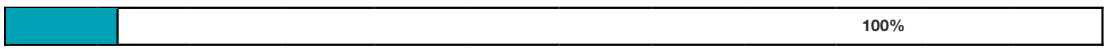
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**Transport** Overall contribution 9.0%



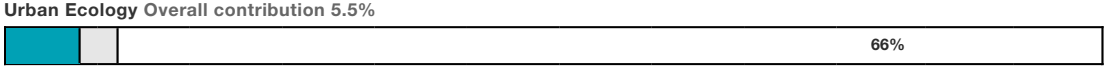

| | |
|---|---|
| 1.1 Bicycle Parking - Residential | 100% |
| 1.2 Bicycle Parking - Residential Visitor | 100% |
| 1.3 Bicycle Parking - Convenience Residential | 100% |
| 1.4 Bicycle Parking - Non-Residential | 100% |
| 1.5 Bicycle Parking - Non-Residential Visitor | 100% |
| 1.6 End of Trip Facilities - Non-Residential | 100% |
| 2.1 Electric Vehicle Infrastructure | 100% |
| 2.2 Car Share Scheme | 0% |
| 2.3 Motorbikes / Mopeds | 0% |

**Waste & Resource Recovery** Overall contribution 5.5%



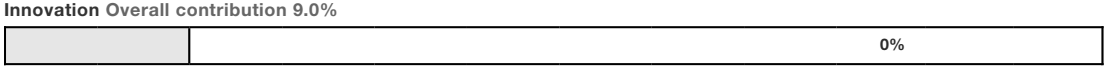

| | |
|---|---|
| 1.1 Construction Waste - Building Re-Use | 100% |
| 2.1 Operational Waste - Food & Garden Waste | 100% |
| 2.2 Operational Waste - Convenience of Recycling | 100% |

**Urban Ecology** Overall contribution 5.5%




| | |
|---|---|
| 1.1 Communal Spaces | 93% |
| 2.1 Vegetation | 100% |
| 2.2 Green Roofs | 100% |
| 2.3 Green Walls and Facades | 0% |
| 2.4 Balconies, Courtyards & Roof terraces | 0% |
| 3.1 Food Production - Residential | 0% |
| 3.2 Food Production - Non-Residential | 0% |

**Innovation** Overall contribution 9.0%




| | |
|---|---|
| 1.1 Innovation | 0% |

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## Credit breakdown

**Management** Overall contribution 4.5%

61%

| | |
|---|---|
| **1.1 Pre-Application Meeting** | 0% |
| Score Contribution | This credit contributes 37.5% towards the category score. |
| Criteria | Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council? |
| Question | Criteria Achieved ? |
| Project | No |
| **2.2 Thermal Performance Modelling - Multi-Dwelling Residential** | 100% |
| Score Contribution | This credit contributes 23.4% towards the category score. |
| Criteria | Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings? |
| Question | Criteria Achieved ? |
| Apartment | Yes |
| **2.3 Thermal Performance Modelling - Non-Residential** | 50% |
| Score Contribution | This credit contributes 1.6% towards the category score. |
| Criteria | Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6? |
| Question | Criteria Achieved ? |
| Office | Yes |
| Criteria | Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star? |
| Question | Criteria Achieved ? |
| Office | No |
| **3.1 Metering - Residential** | 100% |
| Score Contribution | This credit contributes 11.7% towards the category score. |
| Criteria | Have utility meters been provided for all individual dwellings? |
| Question | Criteria Achieved ? |
| Apartment | Yes |
| **3.2 Metering - Non-Residential** | 100% |
| Score Contribution | This credit contributes 0.8% towards the category score. |
| Criteria | Have utility meters been provided for all individual commercial tenants? |
| Question | Criteria Achieved ? |
| Office | Yes |
| **3.3 Metering - Common Areas** | 100% |

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| | |
|---|---|
| Score Contribution | This credit contributes 12.5% towards the category score. |
| Criteria | Have all major common area services been separately submetered? |
| Question | Criteria Achieved ? |
| Apartment | Yes |
| Office | Yes |

**4.1 Building Users Guide** 100%

| | |
|---|---|
| Score Contribution | This credit contributes 12.5% towards the category score. |
| Criteria | Will a building users guide be produced and issued to occupants? |
| Question | Criteria Achieved ? |
| Project | Yes |

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**IWM Overall contribution 22.5%**

80% ✔ Pass

| | |
|---|---|
| Do you have a reticulated third pipe or an on-site water recycling system?: | No |
| Are you installing a swimming pool?: | No |
| **Stormwater profile** | |
| Which stormwater modelling software are you using?: | Blue Factor |
| Blue Factor score achieved?: | 106 |
| Flow: | - |
| Total Suspended Solids: | - |
| Total Phosphorus: | - |
| Total Nitrogen: | - |
| **Rainwater tank profile** | |
| What is the total roof area connected to the rainwater tank?: | |
| Rainwater Tank 1 | 510 m² |
| Rainwater Tank 2 | 539 m² |
| Tank Size: | |
| Rainwater Tank 1 | 16,000 Litres |
| Rainwater Tank 2 | 12,000 Litres |
| Irrigation area connected to tank: | |
| Rainwater Tank 1 | 0.0 m² |
| Rainwater Tank 2 | 1,431 m² |
| Is connected irrigation area a water efficient garden?: | |
| Rainwater Tank 1 | No |
| Rainwater Tank 2 | Yes |
| Other external water demand connected to tank?: | |
| Rainwater Tank 1 | 0.0 Litres/Day |
| Rainwater Tank 2 | 0.0 Litres/Day |
| **Fixtures, fittings & connections profile** | |

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| | |
|---|---|
| **Building:** | |
| LG.01 & 02<br>LG.04<br>LG.03<br>G.01 & G.02<br>1.01 1.02, 2.01 & 2.02<br>G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05<br>1.05 & 2.05<br>G.06, 1.07 & 2.07<br>3.01<br>3.02<br>3.03<br>3.04<br>4.01<br>4.02<br>4.03<br>5.01<br>5.02<br>LG.05, & LG.06<br>G.04, 1.04, 2.04<br>G.05<br>1.06 & 2.06 | Apartments |
| Medical Centre | Medical centre |
| **Showerhead:** All | 4 Star WELS (>= 6.0 but <= 7.5) |
| **Bath:** | |
| LG.01 & 02<br>LG.03<br>G.01 & G.02<br>G.06, 1.07 & 2.07<br>3.01<br>3.02<br>3.03<br>3.04<br>4.01<br>4.02<br>4.03<br>5.01<br>5.02 | Medium Sized Contemporary Bath |
| LG.04<br>1.01 1.02, 2.01 & 2.02<br>G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05<br>1.05 & 2.05<br>Medical Centre<br>LG.05, & LG.06<br>G.04, 1.04, 2.04<br>G.05<br>1.06 & 2.06 | Scope out |
| **Kitchen Taps:** All | >= 5 Star WELS rating |
| **Bathroom Taps:** All | >= 5 Star WELS rating |
| **Dishwashers:** All | >= 5 Star WELS rating |
| **WC:** All | >= 4 Star WELS rating |

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| | |
|---|---|
| **Urinals:** All | Scope out |
| **Washing Machine Water Efficiency:** | |
| LG.01 & 02<br>LG.04<br>LG.03<br>G.01 & G.02<br>1.01 1.02, 2.01 & 2.02<br>G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05<br>1.05 & 2.05<br>G.06, 1.07 & 2.07<br>3.01<br>3.02<br>3.03<br>3.04<br>4.01<br>4.02<br>4.03<br>5.01<br>5.02<br>LG.05, & LG.06<br>G.04, 1.04, 2.04<br>G.05<br>1.06 & 2.06 | Occupant to Install |
| Medical Centre | Scope out |
| **Which non-potable water source is the dwelling/space connected to?:** | |
| LG.01 & 02<br>LG.04<br>LG.03<br>G.01 & G.02<br>1.05 & 2.05<br>LG.05, & LG.06<br>G.05<br>1.06 & 2.06 | Rainwater Tank 1 |
| 1.01 1.02, 2.01 & 2.02<br>G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05<br>G.06, 1.07 & 2.07<br>3.01<br>3.02<br>3.03<br>3.04<br>4.01<br>4.02<br>4.03<br>5.01<br>5.02<br>Medical Centre<br>G.04, 1.04, 2.04 | - |

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| Non-potable water source connected to Toilets: | |
|---|---|
| LG.01 & 02<br>LG.04<br>LG.03<br>G.01 & G.02<br>LG.05, & LG.06<br>G.05<br>1.06 & 2.06 | Yes |
| 1.01 1.02, 2.01 & 2.02<br>G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05<br>1.05 & 2.05<br>G.06, 1.07 & 2.07<br>3.01<br>3.02<br>3.03<br>3.04<br>4.01<br>4.02<br>4.03<br>5.01<br>5.02<br>Medical Centre<br>G.04, 1.04, 2.04 | No |
| **Non-potable water source connected to Laundry (washing machine):** All | No |
| **Non-potable water source connected to Hot Water System:** All | No |

**1.1 Potable Water Use** 40% ✔ Achieved

| | |
|---|---|
| Score Contribution | This credit contributes 33.3% towards the category score. |
| Criteria | What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction. |
| Annotation | RWT connection is proposed to 35 bedrooms. In BESS it is 33 bedrooms. |
| Output | Reference |
| Project | 9255 kL |
| Output | Proposed (excluding rainwater and recycled water use) |
| Project | 7316 kL |
| Output | Proposed (including rainwater and recycled water use) |
| Project | 6930 kL |
| Output | % Reduction in Potable Water Consumption |
| Project | 25 % |
| Output | % of connected demand met by rainwater |
| Project | 47 % |
| Output | How often does the tank overflow? |
| Project | Very Often |
| Output | Opportunity for additional rainwater connection |
| Project | 3731 kL |

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| 2.1 Stormwater Treatment | | 100% | Achieved |
|---|---|---|---|
| Score Contribution | This credit contributes 60% towards the category score. | | |
| Criteria | Has best practice stormwater management been demonstrated? | | |
| Output | Min Blue Factor Score | | |
| Project | 100 | | |
| Output | Blue Factor Score | | |
| Project | 106 | | |

| 3.1 Water Efficient Landscaping | | N/A | Scoped Out |
|---|---|---|---|
| | | | Irrigation provided currently. |
| This credit was scoped out | Irrigation provided currently. | | |

| 4.1 Building Systems Water Use | | 100% |
|---|---|---|
| Score Contribution | This credit contributes 6.7% towards the category score. | |
| Criteria | Where applicable, have measures been taken to reduce potable water consumption by >80% in the buildings air-conditioning chillers and when testing fire safety systems? | |
| Question | Criteria Achieved ? | |
| Project | Yes | |

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**Operational Energy** Overall contribution 27.5%

| | | | |
|---|---|---|---|
| | Minimum required 50% | 78% | ✔ Pass |

| | |
|---|---|
| **Project profile** | |
| Use the BESS Deem to Satisfy (DtS) method for Non-residential spaces?: | No |
| Are you installing any renewable energy system(s) (other than solar photovoltaic)?: | No |
| Energy Supply: | All-electric |
| **Solar Photovoltaic system profile** | |
| System Size (lesser of inverter and panel capacity): Solar Photovoltaic system 1 | 10.0 kW peak |
| Orientation (which way is the system facing)?: Solar Photovoltaic system 1 | North |
| Inclination (angle from horizontal): Solar Photovoltaic system 1 | 5.0 Angle (degrees) |
| Which Building Class does this apply to?: Solar Photovoltaic system 1 | Apartment |
| **Dwellings profile** | |
| Building: All | Apartments |
| Below the floor is: | |
| LG.01 & 02<br>LG.04<br>LG.03<br>LG.05, & LG.06 | Ground or Carpark |
| G.01 & G.02<br>1.01 1.02, 2.01 & 2.02<br>G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05<br>1.05 & 2.05<br>G.06, 1.07 & 2.07<br>3.01<br>3.02<br>3.03<br>3.04<br>4.01<br>4.02<br>4.03<br>5.01<br>5.02<br>G.04, 1.04, 2.04<br>G.05<br>1.06 & 2.06 | Another Occupancy |

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| | |
|---|---|
| **Above the ceiling is:** | |
| LG.01 & 02<br>LG.04<br>LG.03<br>G.01 & G.02<br>1.01 1.02, 2.01 & 2.02<br>G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05<br>1.05 & 2.05<br>G.06, 1.07 & 2.07<br>3.01<br>3.02<br>3.03<br>3.04<br>4.01<br>4.02<br>4.03<br>LG.05, & LG.06<br>G.04, 1.04, 2.04<br>G.05<br>1.06 & 2.06 | Another Occupancy |
| 5.01<br>5.02 | Outside |
| **Exposed sides:** | |
| LG.01 & 02<br>LG.04<br>LG.03<br>G.01 & G.02<br>1.01 1.02, 2.01 & 2.02<br>G.03, G.07, G.08, 1.03, 1.08, 1.09, 2.03, 2.07, 2.08 & 3.05<br>1.05 & 2.05<br>G.06, 1.07 & 2.07<br>3.01<br>3.02<br>3.03<br>3.04<br>4.01<br>4.02<br>4.03<br>5.01<br>5.02 | 2 |
| LG.05, & LG.06 | 4 |
| G.04, 1.04, 2.04 | 3 |
| G.05<br>1.06 & 2.06 | 1 |
| **NatHERS Annual Energy Loads - Heat:** All | 57.0 MJ/sqm |
| **NatHERS Annual Energy Loads - Cool:** All | 15.5 MJ/sqm |
| **NatHERS star rating:** All | 7.5 |
| **Type of Heating System:** All | Reverse cycle space |
| **Heating System Efficiency:** All | 2.5 Stars (2019 MEPS) |
| **Type of Cooling System:** All | Refrigerative space |

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| | |
|---|---|
| Cooling System Efficiency: All | 4 Stars (2019 MEPS) |
| Type of Hot Water System: All | Electric Heat Pump Band 2 |
| Is the hot water system shared by multiple dwellings?: All | Yes |
| % Contribution from solar hot water system: All | 0 % |
| Clothes Line: All | No drying facilities |
| Clothes Dryer: All | Occupant to install |

**Non-residential buildings profile**

| | |
|---|---|
| Heating, Cooling & Comfort Ventilation Electricity Reference fabric and Reference services: | 1,000 kWh |
| Heating, Cooling & Comfort Ventilation Electricity Proposed fabric and Reference services: | 1,000 kWh |
| Heating, Cooling & Comfort Ventilation Electricity Proposed fabric and Proposed services: | 1,000 kWh |
| Heating Wood Reference fabric and Reference services: | 0.0 MJ |
| Heating Wood Proposed fabric and Reference services: | 0.0 MJ |
| Heating Wood Proposed fabric and Proposed services: | 0.0 MJ |
| Hot Water Electricity - Reference: | 1,000 kWh |
| Hot Water Electricity - Proposed: | 1,000 kWh |
| Lighting Electricity - Reference: | 1,000 kWh |
| Lighting Electricity - Proposed: | 1,000 kWh |
| Peak Thermal Cooling Load Reference: | 0.0 kW |
| Peak Thermal Cooling Load Proposed: | 0.0 kW |

**1.1 Thermal Performance Rating - Non-Residential** 12%

| | |
|---|---|
| Score Contribution | This credit contributes 3% towards the category score. |
| Criteria | What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)? |
| Output | Total Improvement |
| Office | 0 % |

**1.2 Thermal Performance Rating - Residential** 50% ✔ Achieved

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| | |
|---|---|
| Score Contribution | This credit contributes 17.2% towards the category score. |
| Criteria | What is the average NatHERS rating? |
| Output | Average NATHERS Rating (Weighted) |
| Apartment | 7.5 Stars |

| **2.1 Greenhouse Gas Emissions** | 78% |
|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 17.9% towards the category score. |
| Criteria | What is the % reduction in annual greenhouse gas emissions against the benchmark? |
| Output | Reference Building with Reference Services (BCA only) |
| Apartment | 114,019 kg CO2 |
| Office | 1,560 kg CO2 |
| Output | Proposed Building with Proposed Services (Actual Building) |
| Apartment | 96,339 kg CO2 |
| Office | 1,560 kg CO2 |
| Output | % Reduction in GHG Emissions |
| Apartment | 15 % |
| Office | 0 % |

| **2.2 Peak Demand** | 0% |
|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 0.4% towards the category score. |
| Criteria | What is the % reduction in the instantaneous (peak-hour) demand against the benchmark? |

| **2.6 Electrification** | 100% |
|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 18.3% towards the category score. |
| Criteria | Is the development all-electric? |
| Question | Criteria Achieved? |
| Project | Yes |

| **2.7 Energy consumption** | 100% |
|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 24.4% towards the category score. |
| Criteria | What is the % reduction in annual energy consumption against the benchmark? |
| Output | Reference Building with Reference Services (BCA only) |
| Apartment | 1,049,660 MJ |
| Office | 7,200 MJ |
| Output | Proposed Building with Proposed Services (Actual Building) |
| Apartment | 444,640 MJ |
| Office | 7,200 MJ |
| Output | % Reduction in total energy |
| Apartment | 57 % |
| Office | 0 % |

| **3.1 Carpark Ventilation** | N/A Scoped Out |
|---|---|

| | |
|---|---|
| This credit was scoped out | More than 40 car parking spaces |

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| 3.2 Hot Water - Non-Residential | 100% |
|---|---|
| Score Contribution | This credit contributes 0.4% towards the category score. |
| Criteria | What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark? |
| Output | Reference |
| Office | 3,600 MJ |
| Output | Proposed |
| Office | 3,600 MJ |
| Output | Improvement |
| Office | 0 % |

| 3.4 Clothes Drying | 0% |
|---|---|
| Score Contribution | This credit contributes 5.7% towards the category score. |
| Criteria | What is the % reduction in annual energy consumption (gas and electricity) from a combination of clothes lines and efficient driers against the benchmark? |
| Output | Reference |
| Apartment | 23,600 kWh |
| Output | Proposed |
| Apartment | 23,600 kWh |
| Output | Improvement |
| Apartment | 0 % |

| 3.6 Internal Lighting - Apartments | 100% |
|---|---|
| Score Contribution | This credit contributes 5.7% towards the category score. |
| Criteria | Is the maximum illumination power density (W/m2) in at least 90% of the relevant building class at least 20% lower than required by clause J7D3(1)(a) and Table J6.2a of the NCC 2022 Vol 1 (Class 2-9)? |
| Question | Criteria Achieved ? |
| Apartment | Yes |

| 3.7 Internal Lighting - Non-Residential | 100% |
|---|---|
| Score Contribution | This credit contributes 0.8% towards the category score. |
| Criteria | Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J7D3a of the NCC 2022 Vol 1? |
| Question | Criteria Achieved ? |
| Office | Yes |

| 4.1 Combined Heat and Power (cogeneration / trigeneration) | N/A ◇ Scoped Out |
|---|---|
| | No cogeneration or trigeneration system in use. |
| This credit was scoped out | No cogeneration or trigeneration system in use. |

| 4.2 Renewable Energy Systems - Solar | 100% |
|---|---|

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| | |
|---|---|
| Score Contribution | This credit contributes 6.1% towards the category score. |
| Criteria | What % of the estimated energy consumption of the building class it supplies does the solar power system provide? |
| Output | Solar Power - Energy Generation per year |
| Apartment | 11,662 kWh |
| Output | % of Building's Energy |
| Apartment | 9 % |

**4.4 Renewable Energy Systems - Other** N/A Scoped Out

No other (non-solar PV) renewable energy is in use.

| | |
|---|---|
| This credit was scoped out | No other (non-solar PV) renewable energy is in use. |

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**IEQ Overall contribution 16.5%**

| | | | | |
|---|---|---|---|---|
| | | Minimum required 50% | 49% | ✔ Pass |

| | |
|---|---|
| What metric do you want to use for daylight to apartments?: | Daylight factor |
| Daylight Factor: use the BESS Deemed to Satisfy (DtS) method?: | No |
| Daylight Factor: what calculation approach do you want to use?: | Use the built in calculation tools |

**Rooms**

| Room Designation: | |
|---|---|
| Bedrooms<br>LG04 bed (meets boundary and light void DTS) | Bedroom |
| Living rooms<br>LG04 living<br>LG05,LG06 living<br>LG03 living<br>G05 living<br>G08, G07 living<br>G03 living<br>G04 living<br>1.06 living<br>1.09, 1.08 living<br>1.03, 2.03 living<br>1.04,2.04 living<br>206 living<br>2.09, 2.08 living | Living |

| Quantity: | |
|---|---|
| Bedrooms | 109 |
| Living rooms | 23 |
| LG04 living<br>LG04 bed (meets boundary and light void DTS)<br>LG03 living<br>G05 living<br>G03 living<br>G04 living<br>1.06 living<br>206 living | 1 |
| LG05,LG06 living<br>G08, G07 living<br>1.09, 1.08 living<br>1.03, 2.03 living<br>1.04,2.04 living<br>2.09, 2.08 living | 2 |

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| Auto-Pass: | |
|---|---|
| Bedrooms<br>Living rooms<br>LG04 living<br>LG04 bed (meets boundary and light void DTS)<br>G05 living | Yes |
| LG05,LG06 living<br>LG03 living<br>G08, G07 living<br>G03 living<br>G04 living<br>1.06 living<br>1.09, 1.08 living<br>1.03, 2.03 living<br>1.04,2.04 living<br>206 living<br>2.09, 2.08 living | No |

| Room Floor Area: | |
|---|---|
| Bedrooms<br>Living rooms | 0.0 m² |
| LG04 living<br>LG05,LG06 living | 36.2 m² |
| LG04 bed (meets boundary and light void DTS) | 11.4 m² |
| LG03 living | 61.5 m² |
| G05 living | 36.4 m² |
| G08, G07 living | 36.7 m² |
| G03 living<br>1.03, 2.03 living | 44.6 m² |
| G04 living | 43.4 m² |
| 1.06 living<br>206 living | 35.0 m² |
| 1.09, 1.08 living | 34.0 m² |
| 1.04,2.04 living | 49.0 m² |
| 2.09, 2.08 living | 36.0 m² |

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| | |
|---|---|
| **Vertical Angle:** | |
| Bedrooms<br>Living rooms | 0.0 Angle (degrees) |
| LG04 living | 36.0 Angle (degrees) |
| LG04 bed (meets boundary and light void DTS) | 15.0 Angle (degrees) |
| LG05,LG06 living | 10.0 Angle (degrees) |
| LG03 living | 13.0 Angle (degrees) |
| G05 living | 44.3 Angle (degrees) |
| G08, G07 living | 16.7 Angle (degrees) |
| G03 living | 29.6 Angle (degrees) |
| G04 living | 20.3 Angle (degrees) |
| 1.06 living | 19.8 Angle (degrees) |
| 1.09, 1.08 living | 27.0 Angle (degrees) |
| 1.03, 2.03 living<br>1.04,2.04 living | 29.0 Angle (degrees) |
| 206 living | 39.6 Angle (degrees) |
| 2.09, 2.08 living | 30.0 Angle (degrees) |
| **Horizontal Angle:** | |
| Bedrooms<br>Living rooms | 0.0 Angle (degrees) |
| LG04 living | 1.0 Angle (degrees) |
| LG04 bed (meets boundary and light void DTS) | 102 Angle (degrees) |
| LG05,LG06 living | 22.0 Angle (degrees) |
| LG03 living | 106 Angle (degrees) |
| G05 living | 60.0 Angle (degrees) |
| G08, G07 living | 32.2 Angle (degrees) |
| G03 living | 86.0 Angle (degrees) |
| G04 living | 92.0 Angle (degrees) |
| 1.06 living | 75.2 Angle (degrees) |
| 1.09, 1.08 living | 34.0 Angle (degrees) |
| 1.03, 2.03 living | 83.7 Angle (degrees) |
| 1.04,2.04 living | 83.2 Angle (degrees) |
| 206 living | 116 Angle (degrees) |
| 2.09, 2.08 living | 77.0 Angle (degrees) |

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| Window Area: | |
|---|---|
| Bedrooms<br>Living rooms | 0.0 m² |
| LG04 living | 36.5 m² |
| LG04 bed (meets boundary and light void DTS) | 10.2 m² |
| LG05,LG06 living<br>G08, G07 living<br>1.09, 1.08 living<br>1.03, 2.03 living | 14.1 m² |
| LG03 living | 18.5 m² |
| G05 living | 15.6 m² |
| G03 living<br>2.09, 2.08 living | 14.0 m² |
| G04 living<br>1.04,2.04 living | 13.6 m² |
| 1.06 living | 14.6 m² |
| 206 living | 16.2 m² |
| **Window Orientation:** | |
| Bedrooms<br>Living rooms | - |
| LG04 living | North |
| LG04 bed (meets boundary and light void DTS)<br>LG05,LG06 living<br>G08, G07 living<br>1.09, 1.08 living<br>2.09, 2.08 living | West |
| LG03 living<br>G03 living<br>G04 living<br>1.03, 2.03 living<br>1.04,2.04 living | East |
| G05 living<br>1.06 living<br>206 living | South |

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| Glass Type: | |
|---|---|
| Bedrooms<br>Living rooms | - |
| LG04 living<br>LG04 bed (meets boundary and light void DTS)<br>LG05,LG06 living<br>LG03 living<br>G05 living<br>G08, G07 living<br>G03 living<br>G04 living<br>1.06 living<br>1.09, 1.08 living<br>1.03, 2.03 living<br>1.04,2.04 living<br>206 living<br>2.09, 2.08 living | Clear Low-E Double (VLT 0.73) |
| **Daylight Criteria Achieved?:** | |
| Bedrooms<br>Living rooms<br>LG04 living<br>LG04 bed (meets boundary and light void DTS)<br>G05 living<br>G03 living<br>1.06 living<br>1.03, 2.03 living<br>1.04,2.04 living<br>206 living<br>2.09, 2.08 living | Yes |
| LG05,LG06 living<br>LG03 living<br>G08, G07 living<br>G04 living<br>1.09, 1.08 living | No |

| 1.1 Daylight Access - Living Areas | 66% | ✔ Achieved |
|---|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 26% towards the category score. |
| Criteria | What % of living areas achieve the daylight criteria? |
| Output | Calculated percentage |
| Apartment | 80 % |

| 1.2 Daylight Access - Bedrooms | 100% | ✔ Achieved |
|---|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 26% towards the category score. |
| Criteria | What % of bedrooms achieve the daylight criteria? |
| Output | Calculated percentage |
| Apartment | 100 % |

| 1.3 Winter Sunlight | 0% |
|---|---|

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| | |
|---|---|
| Score Contribution | This credit contributes 8% towards the category score. |
| Criteria | Do 70% of dwellings receive at least 3 hours of direct sunlight in all Living areas between 9am and 3pm in mid-winter? |
| Question | Criteria Achieved ? |
| Apartment | No |

**1.4 Daylight Access - Non-Residential** 33% ✔ Achieved

| | |
|---|---|
| Score Contribution | This credit contributes 3.6% towards the category score. |
| Criteria | What % of the nominated floor area has at least 2% daylight factor? |
| Question | Percentage Achieved? |
| Office | 33 % |

**1.5 Daylight Access - Main Living Areas** N/A ✣ Scoped Out

Spatial daylight autonomy metric not in use

| | |
|---|---|
| This credit was scoped out | Spatial daylight autonomy metric not in use |

**1.6 Daylight Access - Secondary Habitable Rooms** N/A ✣ Scoped Out

Spatial daylight autonomy metric not in use

| | |
|---|---|
| This credit was scoped out | Spatial daylight autonomy metric not in use |

**2.1 Ventilation - Natural - Apartments** 0%

| | |
|---|---|
| Score Contribution | This credit contributes 26% towards the category score. |
| Criteria | What % of dwellings are effectively naturally ventilated? |
| Question | Percentage Achieved? |
| Apartment | 52 % |

**2.3 Ventilation - Non-Residential** 33% ✔ Achieved

| | |
|---|---|
| Score Contribution | This credit contributes 3.6% towards the category score. |
| | |
| Criteria | What % of the regular use areas are effectively naturally ventilated? |
| Question | Percentage Achieved? |
| Office | 60 % |
| | |
| Criteria | What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012? |
| Question | Percentage Achieved? |
| Office | 0 % |
| | |
| Criteria | What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain? |
| Question | Value |
| Office | 0 ppm |

**3.4 Thermal comfort - Shading - Non-Residential** 100%

| | |
|---|---|
| Score Contribution | This credit contributes 1.8% towards the category score. |

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| | |
|---|---|
| Criteria | What percentage of east, north and west glazing to regular use areas is effectively shaded? |
| Question | Percentage Achieved? |
| Office | 100 % |

| **3.5 Thermal Comfort - Ceiling Fans - Non-Residential** | 0% |
|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 0.6% towards the category score. |
| Criteria | What percentage of regular use areas in tenancies have ceiling fans? |
| Question | Percentage Achieved? |
| Office | 0 % |

| **4.1 Air Quality - Non-Residential** | 100% |
|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 0.6% towards the category score. |

| | |
|---|---|
| Criteria | Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits? |
| Question | Criteria Achieved ? |
| Office | Yes |

| | |
|---|---|
| Criteria | Does all carpet meet the maximum total indoor pollutant emission limits? |
| Question | Criteria Achieved ? |
| Office | Yes |

| | |
|---|---|
| Criteria | Does all engineered wood meet the maximum total indoor pollutant emission limits? |
| Question | Criteria Achieved ? |
| Office | Yes |

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**Transport** Overall contribution 9.0%

77%

| 1.1 Bicycle Parking - Residential | 100% |
|---|---|
| Score Contribution | This credit contributes 20% towards the category score. |
| Criteria | How many secure and undercover bicycle spaces are there for residents? |
| Question | Bicycle Spaces Provided ? |
| Apartment | 42 |
| Output | Min Bicycle Spaces Required |
| Apartment | 42 |

| 1.2 Bicycle Parking - Residential Visitor | 100% |
|---|---|
| Score Contribution | This credit contributes 20% towards the category score. |
| Criteria | How many secure bicycle spaces are there for visitors? |
| Question | Visitor Bicycle Spaces Provided ? |
| Apartment | 10 |
| Output | Min Visitor Bicycle Spaces Required |
| Apartment | 9 |

| 1.3 Bicycle Parking - Convenience Residential | 100% |
|---|---|
| Score Contribution | This credit contributes 10.5% towards the category score. |
| Criteria | Are bike parking facilities for residents located at ground or entry level? |
| Question | Criteria Achieved ? |
| Apartment | Yes |

| 1.4 Bicycle Parking - Non-Residential | 100% |
|---|---|
| Score Contribution | This credit contributes 1.4% towards the category score. |
| Criteria | Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)? |
| Question | Criteria Achieved ? |
| Office | Yes |
| Question | Bicycle Spaces Provided ? |
| Office | 2 |

| 1.5 Bicycle Parking - Non-Residential Visitor | 100% |
|---|---|
| Score Contribution | This credit contributes 0.7% towards the category score. |
| Criteria | Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)? |
| Question | Criteria Achieved ? |
| Office | Yes |
| Question | Bicycle Spaces Provided ? |
| Office | 2 |

| 1.6 End of Trip Facilities - Non-Residential | 100% |
|---|---|

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| | |
|---|---|
| Score Contribution | This credit contributes 0.7% towards the category score. |
| Criteria | Where adequate bicycle parking has been provided. Is there also: * 1 shower for the first 5 employee bicycle spaces plus 1 to each 10 employee bicycles spaces thereafter, * changing facilities adjacent to showers, and * one secure locker per employee bicycle space in the vicinity of the changing / shower facilities? |
| Question | Number of showers provided ? |
| Office | 1 |
| Question | Number of lockers provided ? |
| Office | 2 |
| Output | Min Showers Required |
| Office | 1 |
| Output | Min Lockers Required |
| Office | 2 |

| **2.1 Electric Vehicle Infrastructure** | 100% |
|---|---|
| Score Contribution | This credit contributes 22.4% towards the category score. |
| Criteria | Are facilities provided for the charging of electric vehicles? |
| Question | Criteria Achieved ? |
| Project | Yes |

| **2.2 Car Share Scheme** | 0% |
|---|---|
| Score Contribution | This credit contributes 11.2% towards the category score. |
| Criteria | Has a formal car sharing scheme been integrated into the development? |
| Question | Criteria Achieved ? |
| Project | No |

| **2.3 Motorbikes / Mopeds** | 0% |
|---|---|
| Score Contribution | This credit contributes 11.2% towards the category score. |
| Criteria | Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)? |
| Question | Criteria Achieved ? |
| Project | No |

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**Waste & Resource Recovery** Overall contribution 5.5%

100%

| 1.1 Construction Waste - Building Re-Use | | 100% |
|---|---|---|
| Score Contribution | This credit contributes 33.3% towards the category score. | |
| Criteria | If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used? | |
| Question | Criteria Achieved ? | |
| Project | Yes | |

| 2.1 Operational Waste - Food & Garden Waste | | 100% |
|---|---|---|
| Score Contribution | This credit contributes 33.3% towards the category score. | |
| Criteria | Are facilities provided for on-site management of food and garden waste? | |
| Question | Criteria Achieved ? | |
| Project | Yes | |

| 2.2 Operational Waste - Convenience of Recycling | | 100% |
|---|---|---|
| Score Contribution | This credit contributes 33.3% towards the category score. | |
| Criteria | Are the recycling facilities at least as convenient for occupants as facilities for general waste? | |
| Question | Criteria Achieved ? | |
| Project | Yes | |

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**Urban Ecology Overall contribution 5.5%**

66%

| | | |
|---|---|---|
| **1.1 Communal Spaces** | | 93% |
| Score Contribution | This credit contributes 11.2% towards the category score. | |
| Criteria | Is there at least the following amount of common space measured in square meters : * 1m² for each of the first 50 occupants * Additional 0.5m² for each occupant between 51 and 250 * Additional 0.25m² for each occupant above 251? | |
| Question | Common space provided | |
| Apartment | 199 m² | |
| Office | - | |
| Output | Minimum Common Space Required | |
| Apartment | 86 m² | |
| Office | 33 m² | |
| **2.1 Vegetation** | | 100% |
| Score Contribution | This credit contributes 44.8% towards the category score. | |
| Criteria | How much of the site is covered with vegetation, expressed as a percentage of the total site area? | |
| Question | Percentage Achieved ? | |
| Project | 42 % | |
| **2.2 Green Roofs** | | 100% |
| Score Contribution | This credit contributes 11.2% towards the category score. | |
| Criteria | Does the development incorporate a green roof? | |
| Question | Criteria Achieved ? | |
| Project | Yes | |
| **2.3 Green Walls and Facades** | | 0% |
| Score Contribution | This credit contributes 11.2% towards the category score. | |
| Criteria | Does the development incorporate a green wall or green façade? | |
| Question | Criteria Achieved ? | |
| Project | No | |
| **2.4 Balconies, Courtyards & Roof terraces** | | 0% |
| Score Contribution | This credit contributes 10.5% towards the category score. | |
| Criteria | Is there a tap and floor waste on every balcony and courtyard (including any roof terraces)? | |
| Question | Criteria Achieved ? | |
| Apartment | No | |
| **3.1 Food Production - Residential** | | 0% |

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| | |
|---|---|
| Score Contribution | This credit contributes 10.5% towards the category score. |
| Criteria | What area of space per resident is dedicated to food production? |
| Question | Food Production Area |
| Apartment | - |
| Output | Min Food Production Area |
| Apartment | 31 m² |

| 3.2 Food Production - Non-Residential | 0% |
|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 0.7% towards the category score. |
| Criteria | What area of space per occupant is dedicated to food production? |
| Question | Food Production Area |
| Office | - |
| Output | Min Food Production Area |
| Office | 9 m² |

**Innovation Overall contribution 9.0%**

| | 0% |
|---|---|

| 1.1 Innovation | 0% |
|---|---|

| | |
|---|---|
| Score Contribution | This credit contributes 100% towards the category score. |
| Criteria | What percentage of the Innovation points have been claimed (10 points maximum)? |

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