

SUSTAINABLE MANAGEMENT PLAN

PLANNING AND ENVIRONMENT ACT 1987
GLEN EIRA PLANNING SCHEME

This plan/document is endorsed
as part of Planning Permit:

GE/DP-33027/2019

Sheet: 1 of 1 (all pages)

Endorsed by aja as a delegate
of the Responsible Authority (Glen Eira City
Council)

Endorsed on: 19 January 2021



PROPOSED MIXED-USE DEVELOPMENT

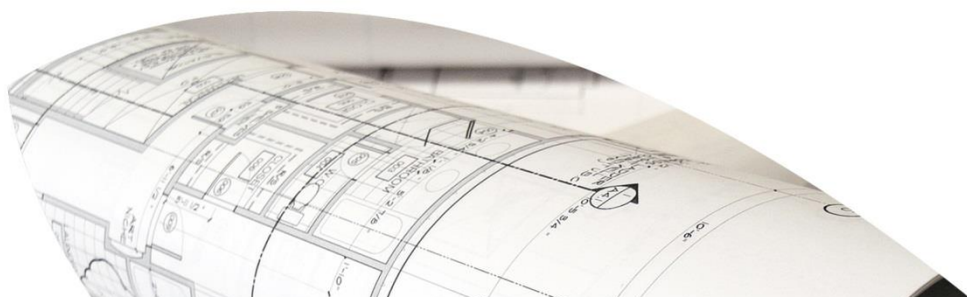
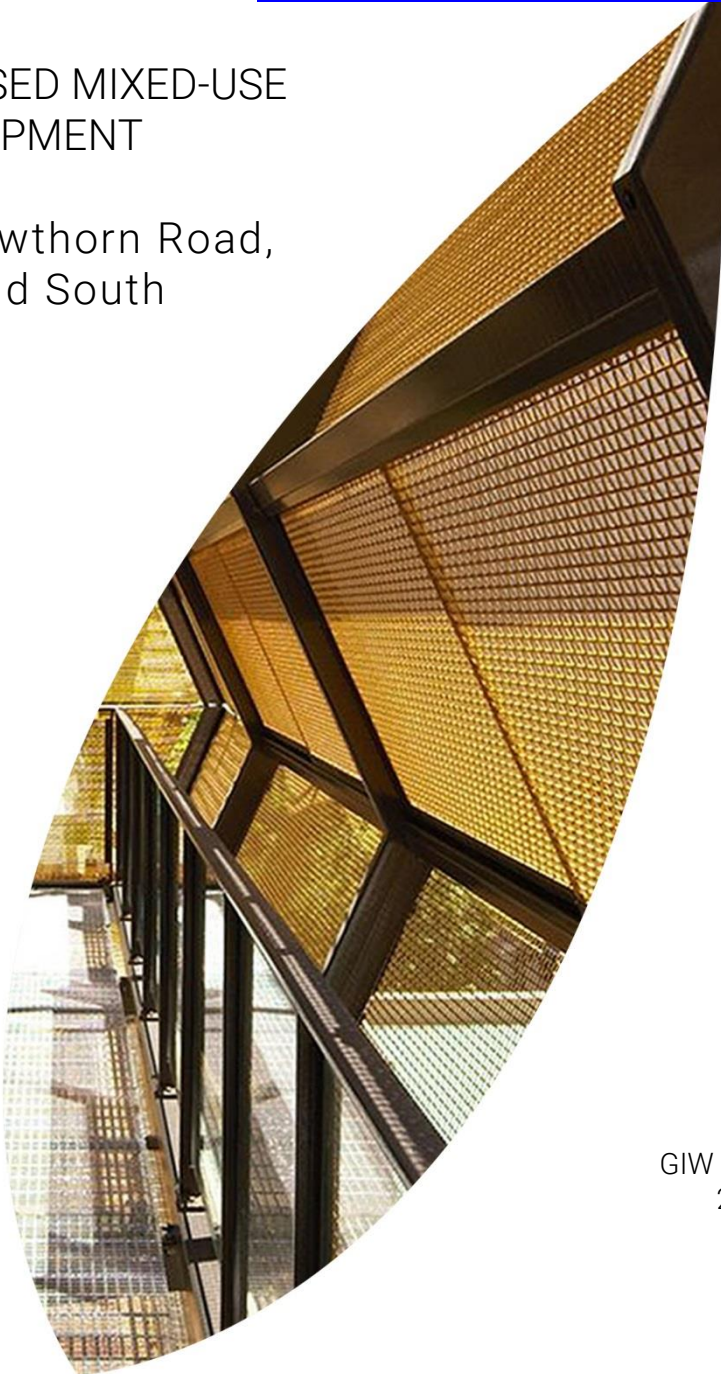
380 Hawthorn Road,
Caulfield South

GIW18163
Revision E

Prepared for:
Olithorn P/L

16 September 2020

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Revision History

Revision Number	Date Issued	Author	Approved	Comments
A	25/06/2019	IB	GW	Draft
B	05/07/2019	IB	GW	Final
C	14/08/2019	IB	GW	Final
D	11/09/2020	IB	GW	For Endorsement
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1. Introduction

Project Information

GIW Environmental Solutions Pty Ltd ("GIW") has been engaged by Olithorn P/L to provide Environmentally Sustainable Design (ESD) consulting services for the proposed mixed-use development at 380 Hawthorn Road, Caulfield South.

The proposed development will include 33 apartments and 3 retail tenancies constructed over 5 floors plus basement carpark and will consist of the following:

- 21 x 2 bedroom apartments
- 12 x 3 bedroom apartments
- 1254m² retail area

This Sustainable Management Plan (SMP) has been prepared to inform City of Glen Eira of the proposed development's sustainability credentials and performance targets. The project team is committed to achieving a building solution which responds to contemporary sustainability objectives as outlined under the Built Environment Sustainability Scorecard (BESS).

Location

The site located at 380 Hawthorn Road, Caulfield South has an approximate surface area of 1,780m² and is currently the location of a commercial development. Distance from the site to Melbourne CBD is approximately 10.2km.



Figure 1 - Pre-existing sites at 380 Hawthorn Road, Caulfield South.

Built Environment Sustainability Scorecard (BESS)

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

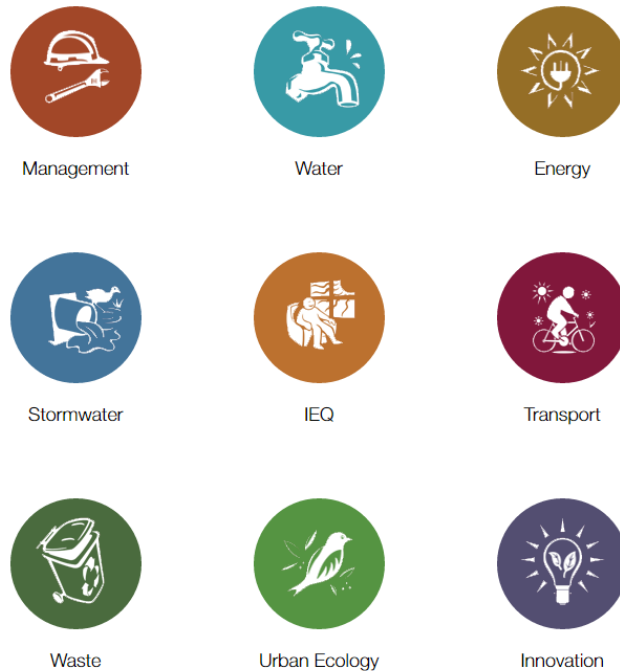


Figure 2 - BESS Environmental Categories (www.bess.net.au)

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

Responsibilities & Implementation

Olithorn P/L 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 and individual lot owners 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:

- Armsby Architects – Project No. 1807 –Appendix A: Architectural Drawings Rev D.
- Municipal Association of Victoria - SDAPP Explained; Building Design for a Sustainable Future
- Built Environment Sustainability Scorecard (BESS)
- Green Star Design & As Built v1.1 Submission Guidelines
- CSIRO 1999, Urban Stormwater – Best Practise Environmental Management Guidelines

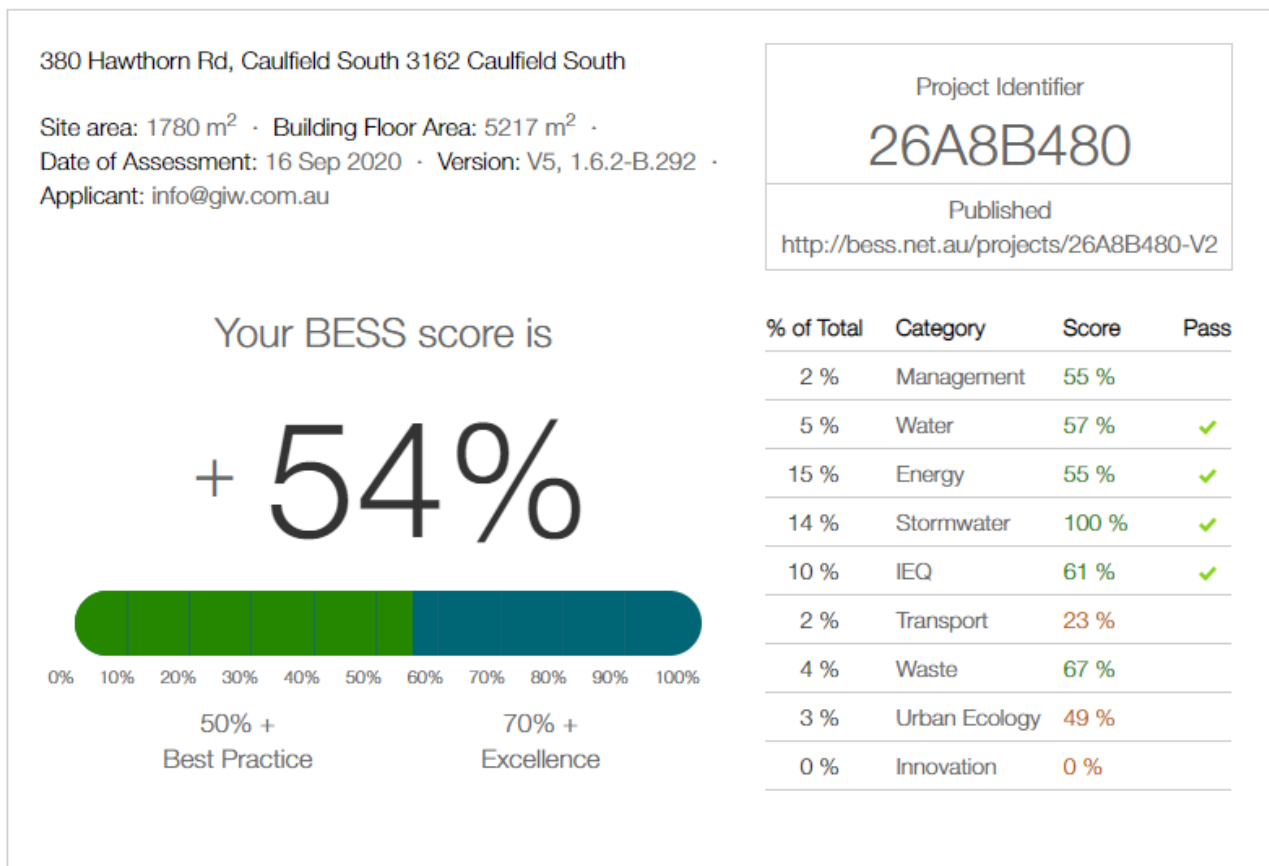
2. ESD Summary

The proposed mixed-use development at 380 Hawthorn Road, Caulfield South will implement the following ESD initiatives:

1. The project achieves a total BESS score of 54% with no mandatory category (IEQ, Energy, Water, Stormwater) below 50%.
2. 48% (16 out of 33) of the development's apartments are naturally cross-ventilated.
3. The non-residential areas are targeting a 2% daylight factor (DF) to 30% of the nominated area.
4. The majority of the development complies with the Deemed-to-Satisfy method for Indoor Environmental Quality (IEQ) prescribed by BESS.
5. 45% (15 out of 33) 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 6.5 Star average NatHERS Energy Rating result.
8. The buildings thermal fabric of the non-residential areas aims to reduce heating and cooling energy consumption 10% below the reference case (BCA Section J).
9. The development is to utilise a centralised gas hot water system
10. Individual cold and hot water, electricity meters will be provided to the apartments and communal areas.
11. A 14.4kW Solar PV system is to be located on the pergola over the rooftop terrace.
12. Water efficient fixtures are applied throughout.
13. A 25,000 litre rainwater tank will harvest rainwater from the roof, rooftop terrace and balconies. This tank will be connected to all ground floor to floor 3 WCs.
14. A Melbourne STORM rating of 109% is achieved.
15. Common area landscaping will be provided with a drip irrigation system with rain sensor, soil moisture sensor or evaporation sensor.
16. In total 19 bicycle spaces are to be provided for residents.
17. 8 bicycle spaces for visitors and 4 bicycle spaces for employees are provided at basement 1.
18. 285.54m² of communal open space will be provided at rooftop.
19. 28.42m² of communal food production area will be provided at rooftop.

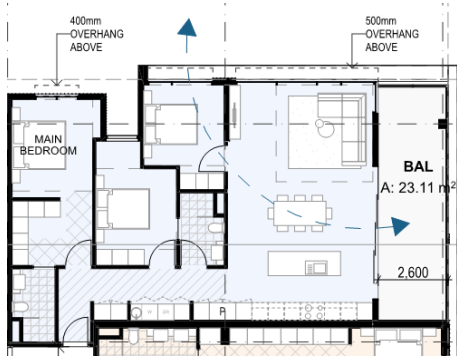
3. BESS Performance

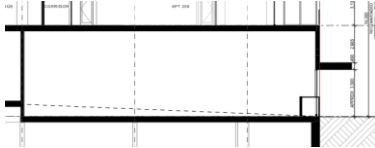
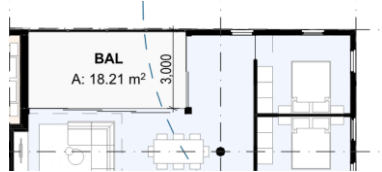
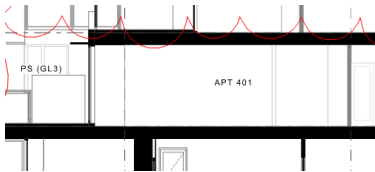
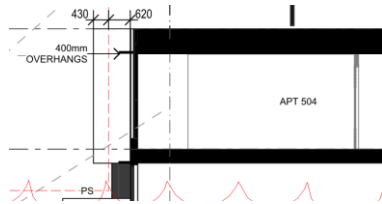
The project achieves a total BESS score of 54% with no mandatory category (IEQ, Energy, Water, Stormwater) below 50%. This figure represents a percentage improvement over a benchmark project. A score of 50% and higher equates to 'best practice' and is an effective pass of the BESS tool. A score of 70% and higher equates to BESS 'excellence' and exists as a higher benchmark in the tool.



4. ESD Assessment

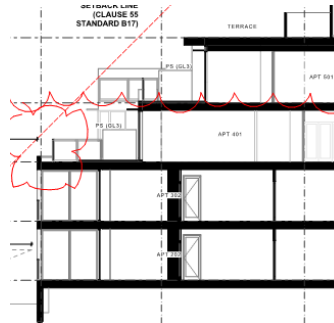
Indoor Environment Quality

Criteria	Development Provision
<p>Natural Ventilation</p> <p>At least 60% of a development's apartments should be naturally ventilated.</p>	<p>48% (16 out of 33) of the development's apartments are naturally cross-ventilated. Apartments are provided with windows on opposite or adjacent facades.</p>  <p>Typical natural cross-ventilated apartment</p>
<p>Daylight</p> <p>Daylight Deemed to Satisfy (DTS) Criteria</p> <p>>30% of the nominated non-residential area achieves a daylight factor of at least 2%</p>	<p>The majority of the development complies with the Deemed-to-Satisfy method for Indoor Environmental Quality (IEQ) prescribed by BESS.</p> <ul style="list-style-type: none"> • All North, West and East oriented living areas and bedrooms are less than 9m deep. No single aspect south facing apartments. • All living areas and bedrooms generally have a floor-to-ceiling height of 2.70m. • All glazing to living areas achieves at least 60% visible light transmittance. • All living areas have an external facing window. • All living areas and bedroom areas are generally in compliance with the requirements of the building separation tables. <p>The non-residential areas are targeting a 2% daylight factor (DF) to 30% of the nominated area.</p>
<p>90% of bedrooms have an external window.</p>	<p>NIL internal bedrooms.</p>
<p>Winter Sunlight</p> <p>70% of dwellings receive at least 3</p>	<p>45% (15 out of 33) of apartments achieve at least 3 hours of sunlight.</p>

Criteria	Development Provision		
	hours of direct sunlight in all living areas between 9am and 3pm in mid-winter.		
	The development is provided with a comprehensive shading strategy:		
Thermal Comfort	Appropriate external shading is provided to east, west and north facing living area and bedroom windows,		
		North and east oriented commercial windows are shaded by a 1,500mm deep overhang.	North, west and east oriented perimeter windows at floor 2 and 3 are sized to allow for balanced heat gains and loss.
			
		Floor 3 north, east and west oriented perimeter windows will be shaded by a 350mm deep overhang.	Floor 4 north and west oriented perimeter windows will be shaded by 400-600mm deep overhangs.

Criteria

Development Provision

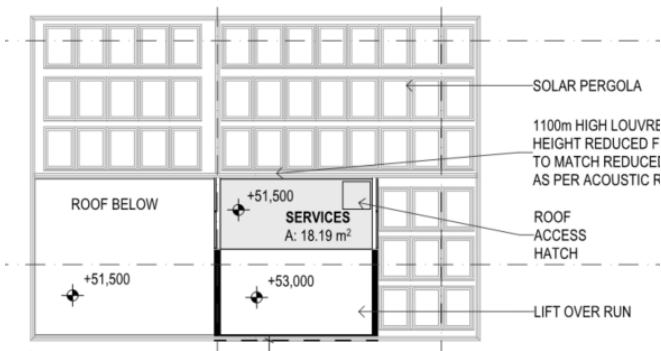


Floor 2-4 north, west and east oriented recessed windows are shaded by the overhanging slab of the floor above.

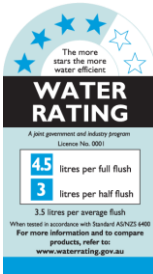



Energy

Criteria		Development Provision					
Thermal Performance Rating	Demonstrate energy efficiencies beyond minimum BCA compliance benchmarks (e.g. 10% or + 1 star).	The National Construction Code (NCC) Class 2 – Sole Occupancy Unit(s) residential building component is to be designed in accordance with NCC Section J (2016) NatHERS requirements. The residential units must achieve an average 6.5 Star rating, with no unit achieving below 5 Stars and no dwelling is to exceed the maximum allowed cooling load of 21 MJ/m2 (Climate Zone 62 Moorabbin). Refer Appendix B for the Preliminary FirstRate Certificates.					
		The apartments are currently achieving a 7.4 Star average. This represents > 10% improvement on minimum NCC compliance benchmarks. The below sample ratings demonstrate the developments ability to achieve this average.					
		Apartment No.	ACE Total MJ/M2	ACE Heating	ACE Cooling	ACE NCFA	Star Rating
		L203	62.1	55.1	7	93.4	7.9
		L310	97.9	84.7	13.2	87.1	6.8
		L405	63	43.6	19.5	106.2	7.9
		L506	85.8	72.3	13.5	108.1	7.2
	Average	77.2	63.9	13.3	98.7	7.4	
	*Apartments are assessed using FirstRate5 v5.2.10						
	Construction assumptions for preliminary FirstRate ratings are 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		Insulation Value			
Floor		Concrete		R1.2			
External Walls		Brick Veneer		R1.8			
External Walls		Lightweight		R2.5			
Internal Walls		Concrete		R1.2			
Internal Walls		Plasterboard		R1.8			

Criteria		Development Provision
		Where exposed above
		Concrete
		R1.2
		Roof
		Concrete
		R1.9
		Fixed Windows
		Aluminium framed, double glazed, clear
		Total System: U-Value: 3.54 SHGC: 0.61
		Sliding Doors
		Aluminium framed, double glazed, clear
		Total System: U-Value: 3.92 SHGC: 0.55
		Awning Windows
		Aluminium framed, double glazed, clear
		Total System: U-Value: 4.98 SHGC: 0.46
		The buildings thermal fabric of the non-residential areas aims to reduce heating and cooling energy consumption 10% below the reference case (BCA Section J).
Hot Water System	Install energy efficient (high star rating) HWS	<p>The development is to utilise a centralised gas hot water system, with either:</p> <ul style="list-style-type: none"> • 6 Star energy rating for instantaneous units; or • Minimum 80% energy efficiency for a single water heater
Peak Energy Demand	Demonstrate Instantaneous (peak-hour) demand has been reduced by >25%	High performance thermal envelope in conjunction with high efficiency HVAC systems and lighting systems reduce energy demand at peak times.
Efficient HVAC Systems	Specify energy efficient (high star rating) heating and cooling systems.	When outdoor conditions are not conducive to natural ventilation, air conditioning will be used. Inverter split system units are to be installed and sized to maintain conditions of the main living space of each apartment. The efficiency of the air conditioning system is to be within 1 star rating of best available under MEPS Post-October 2012 measurement standard.
	Carpark ventilation is either fully naturally ventilated or uses CO monitoring to	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.

Criteria	Development Provision
	<p>The mechanical services engineer is responsible for the design and specification of the system. The contractor is to procure and install the specified system.</p> <p>Maintenance requirements of the CO sensor system are to be included in the O&M manual.</p>
<p>Efficient Lighting</p> <p>Maximum illumination power density (W/m²) in at least 90% of the relevant Building Class is at least 20% lower than required by current BCA requirements</p>	<p>Lighting for the residential and non-residential development is to be LED types. High efficiency fluorescent T5 type lighting will be provided to the carpark and services areas only.</p> <p>Lighting power density shall be as follows:</p> <ul style="list-style-type: none"> Commercial: No greater than average 18W/m² Dwellings: No greater than average 4W/m² Veranda/balcony/terrace: No greater than average 4W/m² Back of house and indoor car parks: No greater than average 5W/m² <p>All common area, external and carpark lighting is to be controlled with daylight, motion sensors or timers (whichever is deemed appropriate).</p>
<p>Renewable Electricity Generation</p> <p>Solar power system provides 5% of the building's energy consumption.</p>	<p>A 14.4kW Solar PV system is to be located on the pergola over the rooftop terrace. The system is expected to generate approximately 19,298kWh and will provide 12% of common area lighting and power.</p>  <p>Location Solar PV System</p>
	<p>Refer Appendix C – Renewable Energy</p>

Water

Criteria	Development Provision				
Potable Water Reduction	>25% potable water reduction.	WELS 4 Star - Toilets	WELS 6 Star - Taps	WELS 4 Star - Showerhead	WELS 5 Star - Dishwasher
					
Rainwater Collection & Reuse	25-75% reduction of potable water demand due to rainwater collection and reuse systems.	A 25,000 litre rainwater tank will harvest rainwater from the roof, rooftop terrace and balconies. This tank will be connected to all ground floor to floor 3 WCs. It is estimated that this will save more than 363kL of potable water every year and meet 86% of the demand in these areas.			
		Stormwater drainage mechanism and filtration requirements are to be determined by the hydraulics services engineer at the design development phase.			
Water Metering	The installation of separate water meters in individual dwellings.	Refer Appendix A – WSUD Response			
		The apartments and commercial tenancies are to have individual cold and hot water meters. This measure is aimed at encouraging user awareness and accountability and it is likely to lead to more responsible water use.			
Landscape Irrigation	Are water efficiency principles used for landscaped areas.	Common area landscaping will be provided with a drip irrigation system with rain sensor, soil moisture sensor or evaporation sensor.			

Stormwater

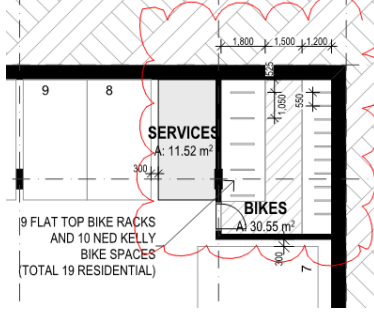

City of Glen Eira Planning Scheme - Clause 58.03-8 - Integrated water and stormwater management objectives are listed as follows:

- To encourage the use of alternative water sources such as rainwater, stormwater and recycled water.
- To facilitate stormwater collection, utilisation and infiltration within the development.
- To encourage development that reduces the impact of stormwater run-off on the drainage system and filters sediment and waste from stormwater prior to discharge from the site.

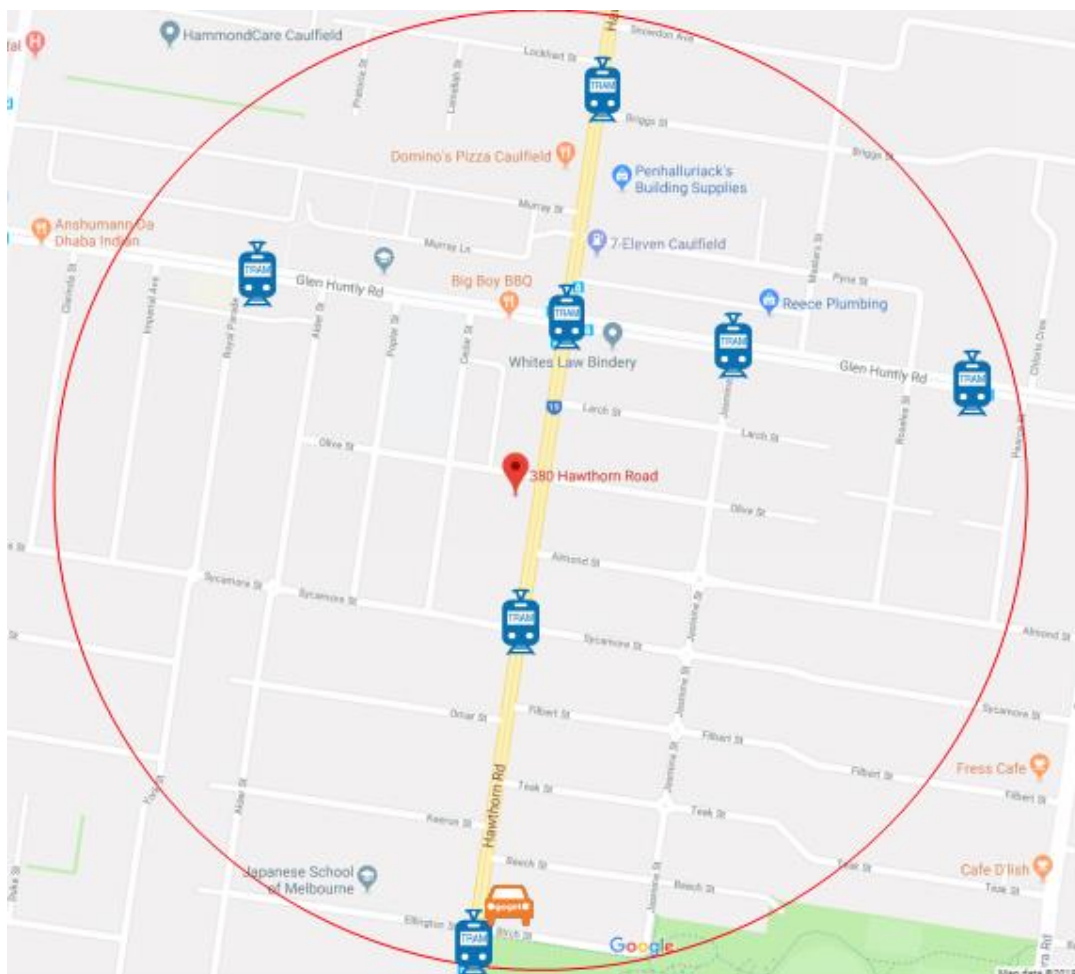
Council Best Practice Standard

Criteria	Development Provision
<p>STORM Rating</p> <p>Exceed Victoria's best practice standards by achieving a MUSIC / STORM rating of at least 100% or equivalent modelling results.</p>	<p>The Melbourne Water - Stormwater Treatment Objective Relative Measure (STORM) tool has been applied to determine performance relative to Best Practice Environmental Management Guidelines (Victoria Stormwater Committee, 1999). As per City of Glen Eira Planning Scheme - Clause 58.03-8 Integrated Water and Stormwater Management, the development is required to achieve a STORM rating of 100% or greater.</p> <p>A Melbourne STORM rating of 109% is achieved via the following:</p> <ul style="list-style-type: none"> • Rainwater is to be collected from the roof, rooftop terrace and balconies and directed into the 25,000 litre rainwater tank. All ground floor to floor 3 WC's are to be connected to the rainwater tank. <p>Note: as rainwater is collected off trafficable areas, suitable filtration is to be introduced.</p> <p>Refer Appendix A – WSUD Response.</p>

Transport

Criteria	Development Provision
<p>Bicycle Facilities</p> <p>For residential developments, provide at least one secure bicycle parking space per dwelling for residents and one bicycle space per 4 dwellings for visitors</p>	<div style="display: flex; justify-content: space-around; align-items: flex-start;">   </div> <p>In total 19 bicycle spaces are to be provided for residents. This will provide a ratio of approximately 1 resident bicycle space for every 2 apartments. This is in line with Planning Scheme Clause 52.34.</p> <p>8 bicycle spaces for visitors and 4 bicycle spaces for employees are provided at basement 1. This is in line with Planning Scheme Clause 52.34.</p>
<p>End of Trip Facilities</p> <p>Provide accessible showers (1 per 10 bicycles spaces), changing facilities and one secure locker per bicycle space in the changing facilities.</p>	<p>NIL required under Planning Scheme Clause 52.34.</p>
<p>Electric Vehicle Charging</p> <p>Provide facilities for charging of electric vehicles.</p>	<p>No car parking spaces are specifically intended for electric vehicles.</p>

Car Share &
Public
Transport



Car Share Scheme



Flexicar



GoGet Car Share



Green Share Car

Public Transport



Bus Stop

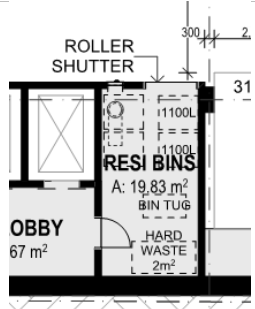


Tram Stop

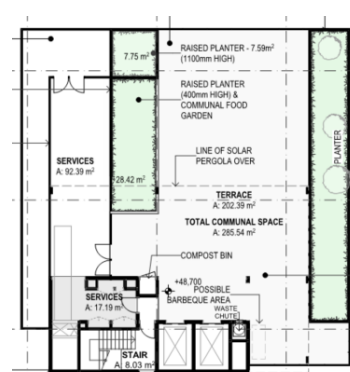


Train Station

Waste Management

Criteria	Development Provision	
Construction Waste Management	Adopt a recycling target of at least 70% for all demolition and construction waste (by mass.)	The contractor will implement a waste management plan to ensure that at least 80% of demolition and construction waste (by mass) is recycled. The waste management plan will be developed in accordance with the MBAV Guidelines.
	If the site has been previously developed, has at least 30% of the existing building been re-used.	None of the existing structure is re-used.
Operational Waste Management	Are the recycling facilities at least as convenient for occupants as facilities for general waste.	 <p>Separate general and recycling waste storage will be provided at basement 1 adjacent to lobby and stairs. Further to this, the waste chute has a waste diverter system to allow for general and recycling waste separation. Refer WMP by others.</p>
	Are facilities provided for on-site management of food and garden waste.	Green waste storage is provided at rooftop terrace for use in conjunction with the communal garden.

Urban Ecology

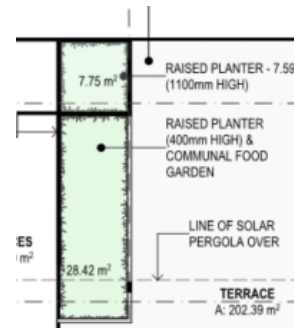
Criteria	Development Provision	
Ecological Value	Enhance the ecological value of your site through the protection of existing vegetation.	The proposed site is currently the location of a large shop. Redeveloping the site will not only reduce the burden on previously undeveloped sites and greenfield urban sprawl, but also provides regeneration to the location and help to create a more socially cohesive and environmentally friendly residential community.
Vegetation	Provide additional vegetation that serves the amenity and environmental performance of the development.	Planter boxes are to be located along the perimeter of the ground floor terrace, third floor balconies, west balconies at the fourth floor and roof top terrace.
	Is there a tap and floor waste on every balcony / in every courtyard	Balconies or private open space have been provided with a tap allowing residents to cultivate their own gardens.
Communal Spaces	<p>Common space :</p> <ul style="list-style-type: none"> -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 	<p>285.54m² of communal open space will be provided at rooftop. Communal space will include the following amenities: landscaped area, productive planters, seating opportunities and barbeque facilities.</p> 
Green Walls / Roof	Green wall or façade and / or green roof are included in the development.	NIL

Criteria

Development Provision

Food
Production

0.25m² of space
per resident
dedicated to food
production.



28.42m² of communal food production area will be provided at the communal rooftop terrace.

Innovation

Criteria	Development Provision
Enhancements	<p>Significant enhancements to a building's environmental performance.</p> <p>This has been addressed throughout this Sustainable Management Plan. Refer specific sections for relevant details.</p>
Innovative Social Improvements	<p>Introduction of measures that stimulate social cohesion and interaction.</p> <p>The proposed development is to be provided with a communal rooftop terrace. This space will allow residents to engage with nature, stimulate social cohesion, neighbourhood interaction and increased sense of community.</p>
New Technology	<p>Introduction of new building technologies.</p> <p>As building technologies continue to evolve, the development will commit to implementing the most current ESD relevant technologies at the time of construction. This will include HVAC systems, ventilation and lighting control systems, building materials, renewable energy technologies, lift systems etc.</p>

Management

Construction and Building Management Actions

Metering	<p>Electricity and cold / hot water metering is to be provided to each individual apartment and commercial tenancy. This measure is aimed at encouraging user awareness and accountability and it is likely to lead to more responsible energy use.</p> <p>Lighting and general power to common areas is to be separately metered to quantify energy used for common areas spaces.</p>
Building Tuning	<p>Provision of comprehensive pre-commissioning, quality monitoring and building tuning for all building services in accordance with CIBSE and ASHRAE (for mechanical systems) guidelines will be the responsibility of the development team. This is in line with the Green Star Design & As-Built tool credit criteria 'Building Commissioning' and 'Building System Tuning'.</p>
Building User's Guide	<p>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:</p> <ul style="list-style-type: none"> • Energy and Environmental Strategy • Options for purchasing a ≥3 Star Washing Machine • Monitoring and Targeting • Building Services • Transport Facilities • Materials and Waste Policy • Expansion/Re-fit Considerations • References and Further Information
ISO14001 Accreditation Builder	<p>ISO14001 Accreditation will be positively weighted as part of the selection criteria.</p>
Construction Management Plan	<p>A site specific Environmental Management Plan in accordance with Section 3 of the NSW Environmental Management System guidelines 2007 will be implemented for the development.</p> <p>This is in line with the Green Star Design & As-Built tool credit criteria for 'Environmental Management Plan'.</p>

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.

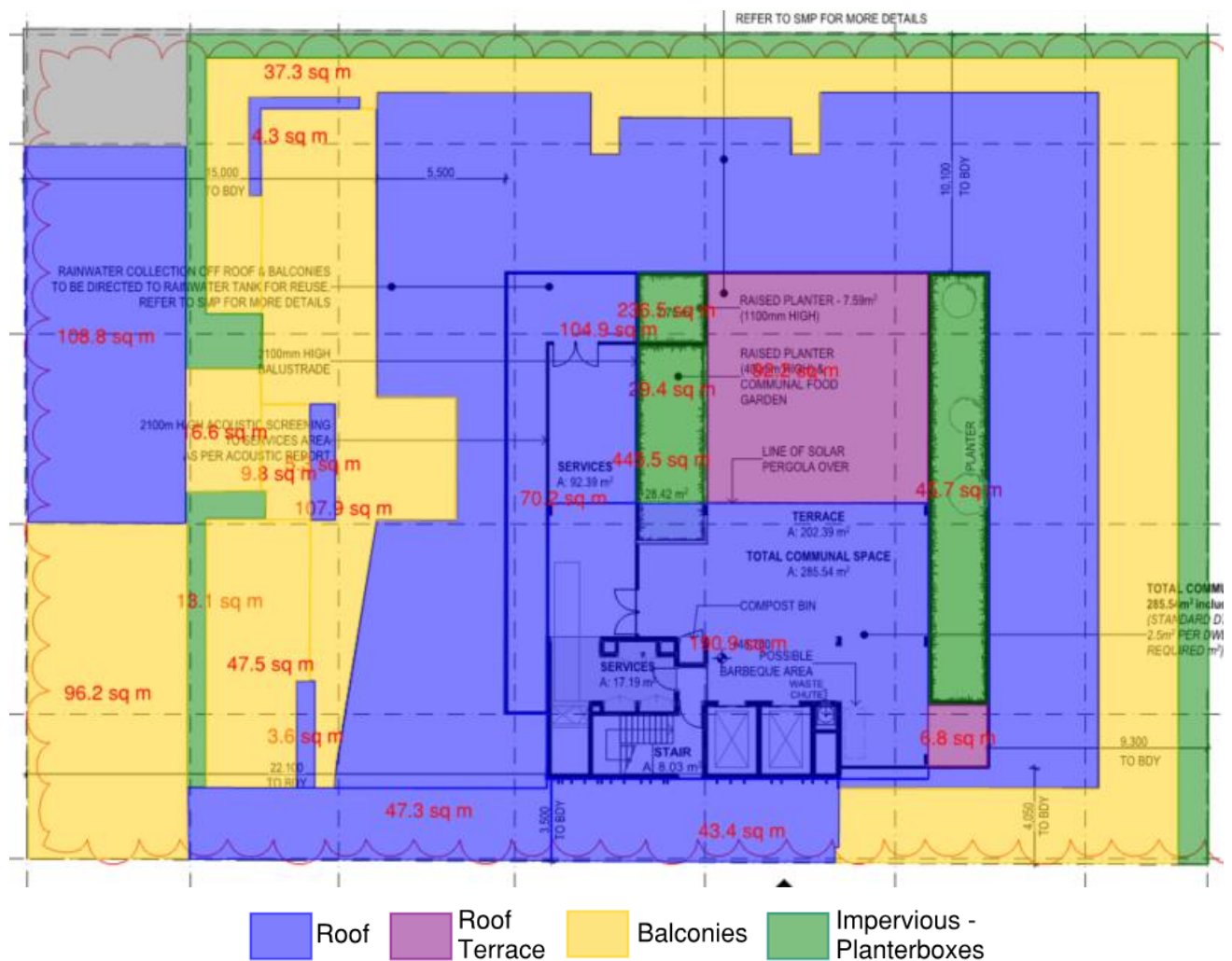


Figure 1 - Mark-up of water catchment and impervious areas

STORM Rating Report

A STORM rating of $\geq 100\%$ can be achieved by implementing the following initiatives:

- Rainwater collection off the roof, rooftop terrace and balconies is to be directed into a 25,000 litre rainwater tank connected to all ground floor to floor 3 WC's.

Melbourne Water has developed the Stormwater Treatment Objective- Relative Measure (STORM) Calculator as a method of simplifying the analysis of stormwater treatment methods. The STORM 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 STORM Result is provided below:



STORM Rating Report

TransactionID: 1026183
Municipality: GLEN EIRA
Rainfall Station: GLEN EIRA
Address: 380 Hawthorn Rd
Caulfield South
VIC 3162
Assessor: GIW
Development Type: Residential - Mixed Use
Allotment Site (m2): 1,780.00
STORM Rating %: 109

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roof	919.00	Rainwater Tank	12,000.00	25	105.70	82.70
Rooftop Terrace	99.00	Rainwater Tank	3,000.00	8	166.50	82.00
Balconies	514.00	Rainwater Tank	10,000.00	25	151.10	78.00
Planter boxes	193.00	None	0.00	0	0.00	0.00
Impervious GF	37.00	None	0.00	0	0.00	0.00

WSUD Strategy

The development will include the provision of a 25,000 litre rainwater tank and associated pump in the basement garage. The rainwater tank is to be connected to all ground floor to floor 3 WC's. Note: as rainwater is collected off trafficable areas, suitable filtration is to be introduced.

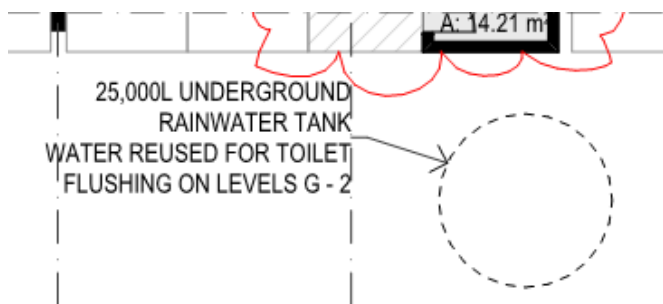


Figure 2 – Location Rainwater Tank

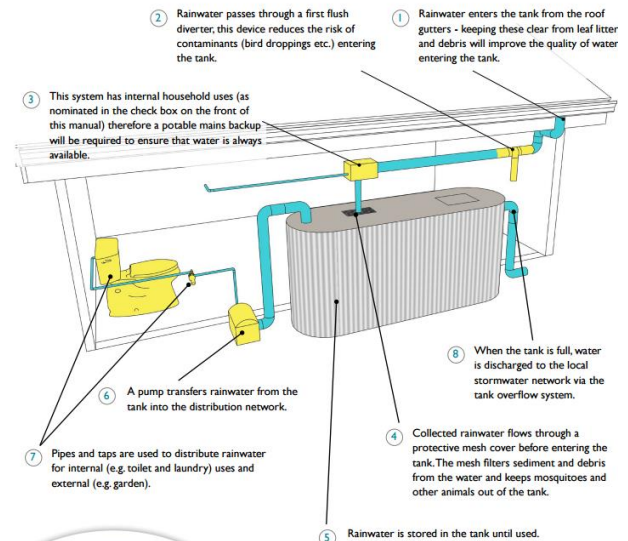


Figure 3 – Cross-section Tank
(City of Port Phillip)

Rainwater Reuse

Inputs

Catchment Area	1532 sqm
Number of Bedrooms	44
Number of Eq. Bedrooms (Retail)	14
Bin Washout	No
Irrigation Area	0 sqm
Tank Capacity	25,000 Litre

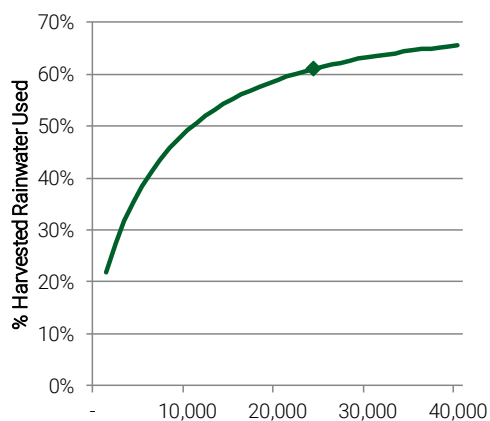
Outputs

% Served by Rainwater	85.8%
% Harvested Rainwater Used	62.0%
Total Potable Water Saved	363,422 Litre

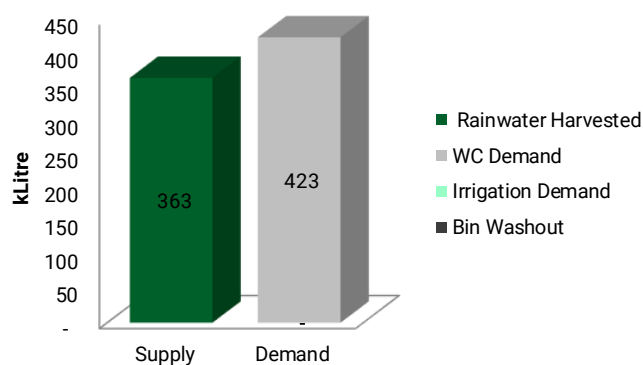
Rainwater Balance (Monthly Averages)

Month	Rainwater Harvested (L)	Irrigation Demand (L)	WC Demand (L)	Bin Washout (L)
Jan	29,152	0	35,960	0
Feb	27,240	0	32,480	0
Mar	27,446	0	35,960	0
Apr	29,704	0	34,800	0
May	30,117	0	35,960	0
Jun	32,623	0	34,800	0
Jul	26,947	0	35,960	0
Aug	33,536	0	35,960	0
Sep	33,889	0	34,800	0
Oct	30,455	0	35,960	0
Nov	34,894	0	34,800	0
Dec	27,332	0	35,960	0
Total	363,335	0	423,400	0
Equivalent STORM tool		0		0

Tank Sizing



Supply-Demand



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

Appendix B: Preliminary FirstRate Certificates

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: 80HPXFLOF0

Date of Certificate: 5 Jul 2019

★ Star rating: 7.9

Assessor details

Accreditation number: VIC/BDAV/10/2024
Name: Gary Wertheimer
Organisation: GIW Environmental Solutions
Email: gary@giw.com.au
Phone: 0390445111
Declaration of interest: No potential conflicts of interest to declare
Software: FirstRate5: 5.2.10b (3.13)
AAO: BDAV

Overview

Dwelling details

Address: L203, 380-394 Hawthorn Road
Suburb: Caulfield South
State: VIC Postcode: 3162
Type: New Home NCC Class: Class 2
Lot/DP number: - NatHERS climate zone: 62
Exposure: suburban

Key construction and insulation materials

(see following pages for details)

Construction: Wall:
Roof:
Floor:
Insulation: Wall:
Roof:
Floor:
Glazing:

Net floor area (m²)

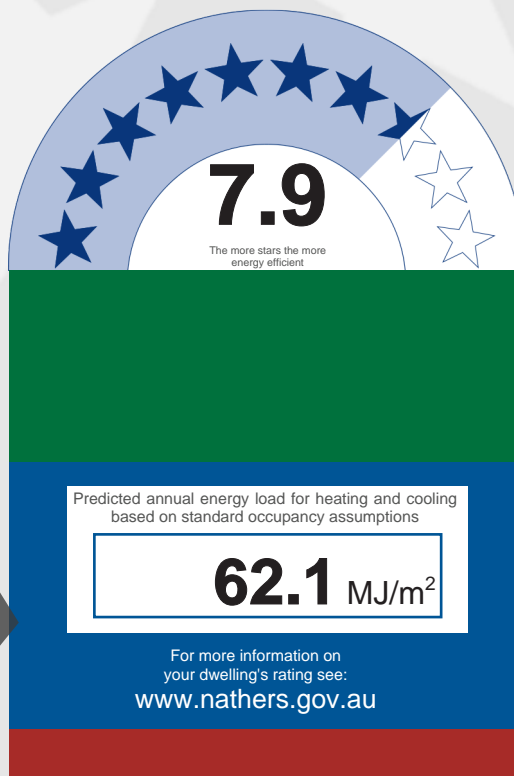
Conditioned: 93.4
Unconditioned: 2.7
Garage: -
TOTAL: 96.1

Annual thermal performance loads (MJ/m²)

Heating: 55.1
Cooling: 7
TOTAL: 62.1

Plan documents

Plan ref/date: -
Prepared by: -



Ceiling penetrations

(see following pages for details)

Sealed: 44
Unsealed: 0
TOTAL: 44

Principal downlight type: Compact fluorescent

****NOTE:** This total is the maximum number of ceiling penetrations allowed to a ceiling (under a roof) for this certificate. **If this number is exceeded in construction then this certificate IS NOT VALID and a new certificate is required.** Loss of ceiling insulation for the penetrations listed has been taken into account with the rating.

Window selection - default windows only

Note on allowable window values: Only a 5% tolerance to the nominated SHGC window values shown on page 2 can be used with this rating.

Note: Only a +/-5% SHGC tolerance is allowed with this rating.

NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated on page 2.

If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be rerated to confirm compliance.

Scan to access this certificate online and confirm this is valid.

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: 80HPXFLOF0

Date of Certificate: 5 Jul 2019

★ Star rating: 7.9

Building Features

Windows type and performance value

Window ID	Window type	U-value	SHGC
CAP-057-01 A	Capral 900 Sliding Door DG 6/12/6	3.92	0.55
CAP-055-01 A	Capral 419 Flushline Fixed Window DG 6/12/6	3.54	0.61
CAP-051-01 A	Capral 35 Awning in 400 Frame DG 6/12/6	4.98	0.46

Windows schedule

Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Zone name	Outdoor shade
CAP-057-01 A	Opening 4	2700	3550	W	Kitchen/Living 1	No
CAP-055-01 A	Opening 1	2700	900	W	Bedroom 2	No
CAP-057-01 A	Opening 2	2700	2300	S	Bedroom 2	No
CAP-051-01 A	Opening 3	2700	1500	W	Bedroom 3	No

Roof windows and skylight type and performance value

ID	Window type	U-value	SHGC
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Roof window and skylight schedule

ID	Roof window/ skylight no.	Area (m ²)	Orientation	Zone name	Outdoor shade	Indoor shade/ diffuser
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External wall type

Type	Insulation	Wall wrap
1 : 380Hawthorn - Brick Veneer Ext	Glass fibre batt (k = 0.044 density = 12 kg/m ³) (R1.8)	No
2 : 380Hawthorn - Plasterboard Int	Glass fibre batt (k = 0.044 density = 12 kg/m ³) (R1.8)	No

External wall schedule

Wall type	Area (m ²)	Orientation	Zone name	Fixed shade	Eaves
1 : 380Hawthorn - Brick Veneer Ext	9.7	W	Kitchen/Living 1	Yes	Yes
2 : 380Hawthorn - Plasterboard Int	23.4	S	Kitchen/Living 1	No	No
2 : 380Hawthorn - Plasterboard Int	11.8	N	Kitchen/Living 1	No	No
2 : 380Hawthorn - Plasterboard Int	4.4	E	Kitchen/Living 1	No	No
1 : 380Hawthorn - Brick Veneer Ext	8.4	W	Bedroom 2	No	No
1 : 380Hawthorn - Brick Veneer Ext	8.6	S	Bedroom 2	Yes	Yes
2 : 380Hawthorn - Plasterboard Int	22.8	N	Bedroom 2	No	No
1 : 380Hawthorn - Brick Veneer Ext	4.2	W	Bedroom 3	Yes	Yes

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: **80HPXFLOF0**

Date of Certificate: **5 Jul 2019**

★ Star rating: **7.9**

Building Features

2 : 380Hawthorn - Plasterboard Int	4.4	E	Bathroom	No	No
2 : 380Hawthorn - Plasterboard Int	4.2	E	Ensuite	No	No
2 : 380Hawthorn - Plasterboard Int	7.4	N	Ensuite	No	No
2 : 380Hawthorn - Plasterboard Int	4.9	S	Pantry	No	No
2 : 380Hawthorn - Plasterboard Int	4.5	S	Laundry	No	No
2 : 380Hawthorn - Plasterboard Int	5.4	S	Study	No	No
2 : 380Hawthorn - Plasterboard Int	9.3	E	Study	No	No
2 : 380Hawthorn - Plasterboard Int	5.3	N	Study	No	No

Internal wall type

Type	Area (m ²)	Insulation
1 : FR5 - Internal Plasterboard Stud Wall	88.5	

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Kitchen/Living 1	380Hawthorn - Concrete 200mm NIL	45	Enclosed	R0.0	Timber
Bedroom 2	380Hawthorn - Concrete 200mm R1.2	14.9	Open	R1.2	Carpet
Bedroom 2	380Hawthorn - Concrete 200mm NIL	3.3	Enclosed	R0.0	Carpet
Bedroom 3	380Hawthorn - Concrete 200mm R1.2	7.2	Open	R1.2	Carpet
Bedroom 3	380Hawthorn - Concrete 200mm NIL	3.3	Enclosed	R0.0	Carpet
Bathroom	380Hawthorn - Concrete 200mm NIL	4.4	Enclosed	R0.0	Tiles
Ensuite	380Hawthorn - Concrete 200mm NIL	4.3	Enclosed	R0.0	Tiles
Pantry	380Hawthorn - Concrete 200mm NIL	4	Enclosed	R0.0	Timber
Laundry	380Hawthorn - Concrete 200mm NIL	2.7	Enclosed	R0.0	Tiles
Study	380Hawthorn - Concrete 200mm NIL	6.8	Enclosed	R0.0	Timber

Ceiling type

Location	Material	Added insulation	Roof space above
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Ceiling penetrations

Location	Number	Type	Width (mm)	Length (mm)	Seal/ unsealed
Kitchen/Living 1	1	Exhaust Fans	200	200	Sealed
Kitchen/Living 1	18	Downlights	80	80	Sealed

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: 80HPXFLOF0

Date of Certificate: 5 Jul 2019

★ Star rating: 7.9

Building Features

Bedroom 2	8	Downlights	80	80	Sealed
Bedroom 3	4	Downlights	80	80	Sealed
Bathroom	1	Exhaust Fans	200	200	Sealed
Bathroom	2	Downlights	80	80	Sealed
Ensuite	1	Exhaust Fans	200	200	Sealed
Ensuite	2	Downlights	80	80	Sealed
Pantry	2	Downlights	80	80	Sealed
Laundry	1	Exhaust Fans	200	200	Sealed
Laundry	1	Downlights	80	80	Sealed
Study	3	Downlights	80	80	Sealed

Ceiling fans

Location	Number	Diameter (mm)
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Roof type

Material	Added insulation	Roof colour
Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab	0.0	medium

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: **80HPXFLOF0**

Date of Certificate: **5 Jul 2019**

★ Star rating: **7.9**

Additional information

Explanatory notes

About this report

Residential energy ratings address the quality of the building fabric i.e. walls, windows, floors and roof/ceilings. Ratings do not cover the energy or water efficiency of appliances including heating and cooling, hot water, dishwashers, ovens, fridges, TVs etc. or solar panel or water tank requirements. The efficiency or specification of these items is generally covered by other regulations, standards or guidelines.

General Information

A NatHERS House Energy Rating is a comprehensive, dynamic computer modelling evaluation of the floorplans, elevations and specifications to predict an energy load of a home. Not all of us use our homes in the same way, so ratings are generated using standard assumptions. This means homes can be compared across the country.

The actual energy consumption of your home may vary significantly from the predicted energy load figures in this report depending on issues such as the size of your household and your personal preferences, e.g. in terms of heating or cooling.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparative purposes between different house designs and for demonstrating that the design meets the required regulatory compliance.

Homes that are energy efficient use less energy, are warmer in winter, cooler in summer and cost less to run. The higher the star rating the more energy efficient.

This NatHERS House Energy Rating report was carefully prepared by your assessor on the basis of comprehensive modelling using standard procedures to rate your home using an underlying engine developed by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO).

All information relating to energy loads presented in this report is based on a range of standard assumptions in order to allow for comparisons with reports prepared for other homes and to demonstrate minimum regulatory compliance. The standard assumptions include figures for occupancy, indoor air temperature and are based on a unique climate file for your region.

Accredited Assessors

To ensure you get a high-quality, professional NatHERS House Energy Rating report, you should always use an accredited assessor, accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

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

If you have any questions or concerns about this report, please direct them to your assessor in the first instance.

If your assessor is unable to address your questions or concerns, please contact their AAO listed under 'assessor details'. You can also find a range of information about accredited assessors on the AAO websites.

Disclaimer

The energy values quoted are for comparison purposes only; they are not a prediction of actual energy use. This rating only applies to the floor plan, construction details, orientation and climate as submitted and included in the attached drawing set that bears a stamp with the same number as this certificate. Changes to any of these details could affect the rating.

Contact

For more information on the Nationwide House Energy Rating Scheme (NatHERS), visit www.nathers.gov.au

For more information on energy efficient design and insulation visit www.yourhome.gov.au

Nationwide House Energy Rating Scheme

NatHERS Certificate No. V4B6EZDTEG

Generated on 11 Sep 2020 using FirstRate5: 5.3.0a (3.21)

Property

Address L310, 380-394 Hawthorn Road, Caulfield South, VIC, 3162
Lot/DP -
NCC Class* Class 2
Type New Home

Plans

Main plan -
Prepared by -

Construction and environment

Assessed floor area (m²)*		Exposure type
Conditioned*	87.1	suburban
Unconditioned*	0	NatHERS climate zone
Total	87.1	62, Caulfield South
Garage	-	



Accredited assessor

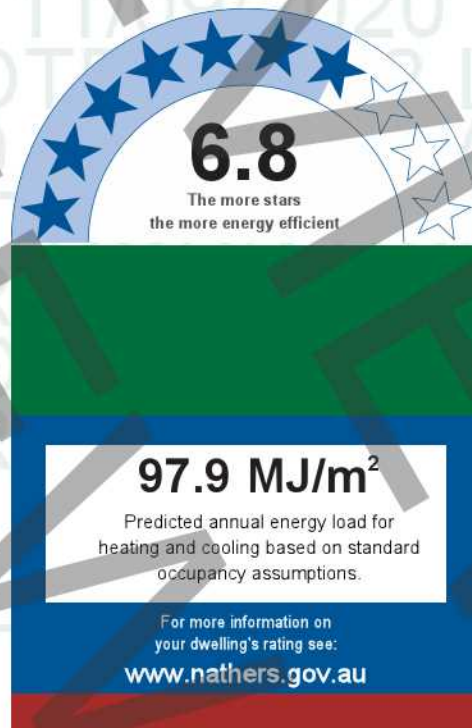
Name	Gary Wertheimer
Business name	GIW Environmental Solutions
Email	gary@giw.com.au
Phone	0390445111
Accreditation No.	DMN/10/2024
Assessor Accrediting Organisation	DMN
Declaration of interest	Declaration completed: no conflicts

National Construction Code (NCC) requirements

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

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

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



Thermal performance

Heating	Cooling
84.7	13.2
MJ/m²	MJ/m²

About the rating

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

Verification

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



Certificate Check

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

Genuine certificate

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

Ceiling penetrations*

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

Windows

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

Apartment entrance doors

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

Exposure*

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

Provisional* values

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

Additional Notes

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-057-01 A	Capral 900 Sliding Door DG 6/12/6	3.92	0.55		
CAP-055-01 A	Capral 419 Flushline Fixed Window DG 6/12/6	3.54	0.61		
CAP-051-01 A	Capral 35 Awning in 400 Frame DG 6/12/6	4.98	0.46		

Window and glazed door *Schedule*

Location	Window ID	Window no.	Height (mm)	Width (mm)	Window type	Opening %	Orientation	Window shading device*
Kitchen/Living 1	CAP-057-01 A	Opening 3	2700	2960	sliding	50.0	E	No
Bedroom 3	CAP-055-01 A	Opening 1	2700	900	fixed	0.0	E	No

Bedroom 3	CAP-057-01 A	Opening 2	2700	2300	sliding	50.0	N	No
Bedroom 7	CAP-051-01 A	Opening 4	2700	2200	awning	30.0	W	No

Roof window type and performance value

Default* roof windows

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

Custom* roof windows

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

Roof window schedule

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

Skylight type and performance

Skylight ID	Skylight description
No Data Available	

Skylight schedule

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

External door schedule

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

External wall type

Wall ID	Wall type	Solar absorptance	Wall shade (colour)	Bulk insulation (R-value)	Reflective wall wrap*
1	380Hawthorn - Concrete Int	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.2)	No
2	380Hawthorn - Brick Veneer Ext	0.5	Medium	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8)	No
3	380Hawthorn - Plasterboard Int	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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Kitchen/Living 1	1	2700	1734	W	1539	Yes
Kitchen/Living 1	2	2700	3298	E	3222	Yes
Kitchen/Living 1	3	2700	12871	N	0	No
Ensuite	1	2700	1258	W	1543	Yes
Bedroom 3	2	2700	5577	S	0	No
Bedroom 3	2	2700	2975	E	0	No
Bedroom 3	2	2700	3026	N	3222	Yes
Ensuite	2	2700	2720	S	0	No
Pantry	2	2700	3162	S	0	No
Bedroom 7	2	2700	4222	S	0	No
Bedroom 7	1	2700	3104	W	1555	Yes

Internal wall type

Wall ID	Wall type	Area (m²)	Bulk insulation
1	FR5 - Internal Plasterboard Stud Wall	61.4	
2	FR5 - Brick Veneer	6.4	

Floor type

Location	Construction	Area (m²)	Sub-floor ventilation	Added insulation (R-value)	Covering
Kitchen/Living 1	380Hawthorn - Concrete 200mm NIL	32.4	Enclosed	R0.0	Timber
Kitchen/Living 1	380Hawthorn - Concrete 200mm NIL	13.5	Enclosed	R0.0	Timber
Ensuite	380Hawthorn - Concrete 200mm NIL	3.8	Enclosed	R0.0	Carpet
Bedroom 3	380Hawthorn - Concrete 200mm NIL	13.1	Enclosed	R0.0	Carpet
Ensuite	380Hawthorn - Concrete 200mm NIL	4.5	Enclosed	R0.0	Tiles
Pantry	380Hawthorn - Concrete 200mm NIL	5.1	Enclosed	R0.0	Timber
Bedroom 7	380Hawthorn - Concrete 200mm NIL	13.6	Enclosed	R0.0	Carpet
Bedroom 7	380Hawthorn - Concrete 200mm NIL	1	Enclosed	R0.0	Carpet

Ceiling type

Location	Construction material/type	Bulk insulation R-value (may include edge batt values)	Reflective wrap*
Kitchen/Living 1	Plasterboard	R1.4	No
Bedroom 3	Plasterboard	R1.4	No
Ensuite	Plasterboard	R1.4	No
Pantry	Plasterboard	R1.4	No
Bedroom 7	Plasterboard	R1.4	No

Ceiling penetrations*

Location	Quantity	Type	Diameter (mm)	Sealed/unsealed
Kitchen/Living 1	1	Exhaust Fans	200	Sealed
Kitchen/Living 1	18	Downlights	80	Sealed
Ensuite	1	Downlights	80	Sealed

Bedroom 3	5	Downlights	80	Sealed
Ensuite	1	Exhaust Fans	200	Sealed
Ensuite	2	Downlights	80	Sealed
Pantry	2	Downlights	80	Sealed
Bedroom 7	4	Downlights	80	Sealed

Ceiling fans

Location	Quantity	Diameter (mm)
No Data Available		

Roof type

Construction	Added insulation (R-value)	Solar absorptance	Roof shade
Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab	0.0	0.5	Medium

Explanatory Notes

About this report

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

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

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

Accredited assessors

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

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

Glossary

Annual energy load	the predicted amount of energy required for heating and cooling, based on standard occupancy assumptions.
Assessed floor area	the floor area modelled in the software for the purpose of the NatHERS assessment. Note, this may not be consistent with the floor area in the design documents.
Ceiling penetrations	features that require a penetration to the ceiling, including downlights, vents, exhaust fans, rangehoods, chimneys and flues. Excludes fixtures attached to the ceiling with small holes through the ceiling for wiring, e.g. ceiling fans; pendant lights, and heating and cooling ducts.
Conditioned	a zone within a dwelling that is expected to require heating and cooling based on standard occupancy assumptions. In some circumstances it will include garages.
Custom windows	windows listed in NatHERS software that are available on the market in Australia and have a WERS (Window Energy Rating Scheme) rating.
Default windows	windows that are representative of a specific type of window product and whose properties have been derived by statistical methods.
Entrance door	these signify ventilation benefits in the modelling software and must not be modelled as a door when opening to a minimally ventilated corridor in a Class 2 building.
Exposure category - exposed	terrain with no obstructions e.g. flat grazing land, ocean-frontage, desert, exposed high-rise unit (usually above 10 floors).
Exposure category - open	terrain with few obstructions at a similar height e.g. grasslands with few well scattered obstructions below 10m, farmland with scattered sheds, lightly vegetated bush blocks, elevated units (e.g. above 3 floors).
Exposure category - suburban	terrain with numerous, closely spaced obstructions below 10m e.g. suburban housing, heavily vegetated bushland areas.
Exposure category - protected	terrain with numerous, closely spaced obstructions over 10 m e.g. city and industrial areas.
Horizontal shading feature	provides shading to the building in the horizontal plane, e.g. eaves, verandahs, pergolas, carports, or overhangs or balconies from upper levels.

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

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

Disclaimer

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

The predicted annual energy load in this NatHERS Certificate is an estimate based on an assessment of the building by the assessor. It is not a prediction of actual energy use, but may be used to compare how other buildings are likely to perform when used in a similar way. Information presented in this report relies on a range of standard assumptions (both embedded in NatHERS accredited software and made by the assessor who prepared this report), including assumptions about occupancy, indoor air temperature and local climate.

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

National Construction Code (NCC) Class	the NCC groups buildings by their function and use, and assigns a classification code. NatHERS software models NCC Class 1, 2 or 4 buildings and attached Class 10a buildings. Definitions can be found at www.abcb.gov.au .
Opening Percentage	the openability percentage or operable (moveable) area of doors or windows that is used in ventilation calculations.
Provisional value	an assumed value that does not represent an actual value. For example, if the wall colour is unspecified in the documentation, a provisional value of 'medium' must be modelled. Acceptable provisional values are outlined in the NatHERS Technical Note and can be found at www.nathers.gov.au
Reflective wrap (also known as foil)	can be applied to walls, roofs and ceilings. When combined with an appropriate airgap and emissivity value, it provides insulative properties.
Roof window	for NatHERS this is typically an operable window (i.e. can be opened), will have a plaster or similar light well if there is an attic space, and generally does not have a diffuser.
Shading device	a device fixed to windows that provides shading e.g. window awnings or screens but excludes eaves.
Shading features	includes neighbouring buildings, fences, and wing walls, but excludes eaves.
Solar heat gain coefficient (SHGC)	the fraction of incident solar radiation admitted through a window, both directly transmitted as well as absorbed and subsequently released inward. SHGC is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it transmits.
Skylight (also known as roof lights)	for NatHERS this is typically a moulded unit with flexible reflective tubing (light well) and a diffuser at ceiling level.
U-value	the rate of heat transfer through a window. The lower the U-value, the better the insulating ability.
Unconditioned	a zone within a dwelling that is assumed to not require heating and cooling based on standard occupancy assumptions.
Vertical shading features	provides shading to the building in the vertical plane and can be parallel or perpendicular to the subject wall/window. Includes privacy screens, other walls in the building (wing walls), fences, other buildings, vegetation (protected or listed heritage trees).

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: OVE8SNDUNB

Date of Certificate: 5 Jul 2019

★ Star rating: 7.9

Assessor details

Accreditation number: VIC/BDAV/10/2024
Name: Gary Wertheimer
Organisation: GIW Environmental Solutions
Email: gary@giw.com.au
Phone: 0390445111
Declaration of interest: No potential conflicts of interest to declare
Software: FirstRate5: 5.2.10b (3.13)
AAO: BDAV

Overview

Dwelling details

Address: L405, 380-394 Hawthorn Road
Suburb: Caulfield South
State: VIC Postcode: 3162
Type: New Home NCC Class: Class 2
Lot/DP number: - NatHERS climate zone: 62
Exposure: open

Key construction and insulation materials

(see following pages for details)

Construction: Wall:
Roof:
Floor:
Insulation: Wall:
Roof:
Floor:
Glazing:

Ceiling penetrations

(see following pages for details)

Sealed: 46
Unsealed: 0
TOTAL: 46

Principal downlight type: Compact fluorescent

****NOTE:** This total is the maximum number of ceiling penetrations allowed to a ceiling (under a roof) for this certificate. **If this number is exceeded in construction then this certificate IS NOT VALID and a new certificate is required.** Loss of ceiling insulation for the penetrations listed has been taken into account with the rating.

Net floor area (m²)

Conditioned: 106.2
Unconditioned: 4.8
Garage: -
TOTAL: 111

Annual thermal performance loads (MJ/m²)

Heating: 43.6
Cooling: 19.5
TOTAL: 63.1

Window selection - default windows only

Note on allowable window values: Only a 5% tolerance to the nominated SHGC window values shown on page 2 can be used with this rating.

Note: Only a +/-5% SHGC tolerance is allowed with this rating.

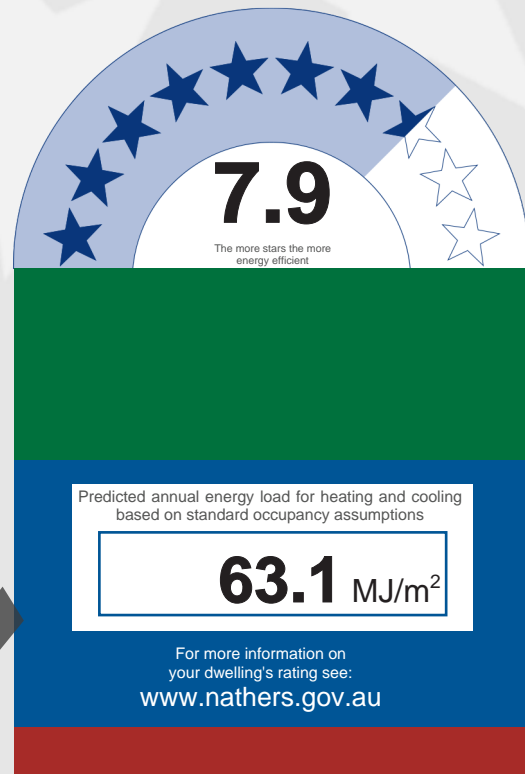
NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated on page 2.

If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be rerated to confirm compliance.

Scan to access this certificate online and confirm this is valid.

Plan documents

Plan ref/date: -
Prepared by: -



Nationwide House Energy Rating Scheme* Certificate

Certificate Number: OVE8SNDUNB

Date of Certificate: 5 Jul 2019

★ Star rating: 7.9

Building Features

Windows type and performance value

Window ID	Window type	U-value	SHGC
CAP-055-01 A	Capral 419 Flushline Fixed Window DG 6/12/6	3.54	0.61
CAP-057-01 A	Capral 900 Sliding Door DG 6/12/6	3.92	0.55

Windows schedule

Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Zone name	Outdoor shade
CAP-055-01 A	Opening 6	2700	1150	E	Kitchen/Living 1	No
CAP-057-01 A	Opening 7	2700	4750	E	Kitchen/Living 1	No
CAP-057-01 A	Opening 4	2700	2900	N	Kitchen/Living 1	No
CAP-055-01 A	Opening 5	2700	1000	N	Kitchen/Living 1	No
CAP-057-01 A	Opening 1	2700	1200	N	Bedroom 2	No
CAP-057-01 A	Opening 2	2700	2300	N	Bedroom 3	No
CAP-057-01 A	Opening 3	2700	2300	N	Bedroom 4	No

Roof windows and skylight type and performance value

ID	Window type	U-value	SHGC
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Roof window and skylight schedule

ID	Roof window/ skylight no.	Area (m ²)	Orientation	Zone name	Outdoor shade	Indoor shade/ diffuser
----	---------------------------	------------------------	-------------	-----------	---------------	------------------------

External wall type

Type	Insulation	Wall wrap
1 : 380Hawthorn - Plasterboard Int	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8)	No
2 : 380Hawthorn - Lightweight Ext	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No

External wall schedule

Wall type	Area (m ²)	Orientation	Zone name	Fixed shade	Eaves
1 : 380Hawthorn - Plasterboard Int	7.9	W	Kitchen/Living 1	No	No
1 : 380Hawthorn - Plasterboard Int	7	N	Kitchen/Living 1	No	No
1 : 380Hawthorn - Plasterboard Int	4.6	W	Kitchen/Living 1	No	No
1 : 380Hawthorn - Plasterboard Int	12	S	Kitchen/Living 1	No	No
1 : 380Hawthorn - Plasterboard Int	7.4	E	Kitchen/Living 1	No	No
1 : 380Hawthorn - Plasterboard Int	28.9	S	Kitchen/Living 1	No	No

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: OVE8SNDUNB

Date of Certificate: 5 Jul 2019

★ Star rating: 7.9

Building Features

2 : 380Hawthorn - Lightweight Ext	23.6	E	Kitchen/Living 1	Yes	Yes
2 : 380Hawthorn - Lightweight Ext	12.3	N	Kitchen/Living 1	Yes	Yes
1 : 380Hawthorn - Plasterboard Int	12.5	W	Bedroom 2	No	No
2 : 380Hawthorn - Lightweight Ext	3.4	N	Bedroom 2	Yes	No
2 : 380Hawthorn - Lightweight Ext	5.6	W	Bedroom 3	Yes	No
2 : 380Hawthorn - Lightweight Ext	8	N	Bedroom 3	Yes	Yes
2 : 380Hawthorn - Lightweight Ext	9	N	Bedroom 4	Yes	Yes

Internal wall type

Type	Area (m ²)	Insulation
1 : FR5 - Internal Plasterboard Stud Wall	85	

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Kitchen/Living 1	380Hawthorn - Concrete 200mm NIL	44.3	Enclosed	R0.0	Timber
Kitchen/Living 1	380Hawthorn - Concrete 200mm NIL	19.7	Enclosed	R0.0	Timber
Bedroom 2	380Hawthorn - Concrete 200mm NIL	12.1	Enclosed	R0.0	Carpet
Bedroom 3	380Hawthorn - Concrete 200mm NIL	13.1	Enclosed	R0.0	Carpet
Bedroom 4	380Hawthorn - Concrete 200mm NIL	17	Enclosed	R0.0	Carpet
Ensuite	380Hawthorn - Concrete 200mm NIL	4.8	Enclosed	R0.0	Tiles

Ceiling type

Location	Material	Added insulation	Roof space above
Kitchen/Living 1	Plasterboard	R1.4	No

Ceiling penetrations

Location	Number	Type	Width (mm)	Length (mm)	Seal/ unsealed
Kitchen/Living 1	1	Exhaust Fans	200	200	Sealed
Kitchen/Living 1	26	Downlights	80	80	Sealed
Bedroom 2	5	Downlights	80	80	Sealed
Bedroom 3	5	Downlights	80	80	Sealed
Bedroom 4	6	Downlights	80	80	Sealed
Ensuite	1	Exhaust Fans	200	200	Sealed
Ensuite	2	Downlights	80	80	Sealed

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: OVE8SNDUNB

Date of Certificate: 5 Jul 2019

★ Star rating: 7.9

Building Features

Ceiling fans

Location	Number	Diameter (mm)
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Roof type

Material	Added insulation	Roof colour
Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab	0.0	medium

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: **OVE8SNDUNB**

Date of Certificate: **5 Jul 2019**

★ Star rating: **7.9**

Additional information

Explanatory notes

About this report

Residential energy ratings address the quality of the building fabric i.e. walls, windows, floors and roof/ceilings. Ratings do not cover the energy or water efficiency of appliances including heating and cooling, hot water, dishwashers, ovens, fridges, TVs etc. or solar panel or water tank requirements. The efficiency or specification of these items is generally covered by other regulations, standards or guidelines.

General Information

A NatHERS House Energy Rating is a comprehensive, dynamic computer modelling evaluation of the floorplans, elevations and specifications to predict an energy load of a home. Not all of us use our homes in the same way, so ratings are generated using standard assumptions. This means homes can be compared across the country.

The actual energy consumption of your home may vary significantly from the predicted energy load figures in this report depending on issues such as the size of your household and your personal preferences, e.g. in terms of heating or cooling.

While the figures are an indicative guide to energy use, they can be used as a reliable guide for comparative purposes between different house designs and for demonstrating that the design meets the required regulatory compliance.

Homes that are energy efficient use less energy, are warmer in winter, cooler in summer and cost less to run. The higher the star rating the more energy efficient.

This NatHERS House Energy Rating report was carefully prepared by your assessor on the basis of comprehensive modelling using standard procedures to rate your home using an underlying engine developed by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO).

All information relating to energy loads presented in this report is based on a range of standard assumptions in order to allow for comparisons with reports prepared for other homes and to demonstrate minimum regulatory compliance. The standard assumptions include figures for occupancy, indoor air temperature and are based on a unique climate file for your region.

Accredited Assessors

To ensure you get a high-quality, professional NatHERS House Energy Rating report, you should always use an accredited assessor, accredited assessors are members of a professional body called an Assessor Accrediting Organisation (AAO).

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Disclaimer

The energy values quoted are for comparison purposes only; they are not a prediction of actual energy use. This rating only applies to the floor plan, construction details, orientation and climate as submitted and included in the attached drawing set that bears a stamp with the same number as this certificate. Changes to any of these details could affect the rating.

Contact

For more information on the Nationwide House Energy Rating Scheme (NatHERS), visit www.nathers.gov.au

For more information on energy efficient design and insulation visit www.yourhome.gov.au

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: D3JWNH5G0U

Date of Certificate: 5 Jul 2019

★ Star rating: 7.2

Assessor details

Accreditation number: VIC/BDAV/10/2024
Name: Gary Wertheimer
Organisation: GIW Environmental Solutions
Email: gary@giw.com.au
Phone: 0390445111
Declaration of interest: No potential conflicts of interest to declare
Software: FirstRate5: 5.2.10b (3.13)
AAO: BDAV

Overview

Dwelling details

Address: L506, 380-394 Hawthorn Road
Suburb: Caulfield South
State: VIC Postcode: 3162
Type: New Home NCC Class: Class 2
Lot/DP number: - NatHERS climate zone: 62
Exposure: open

Key construction and insulation materials

(see following pages for details)

Construction: Wall:
Roof:
Floor:
Insulation: Wall:
Roof:
Floor:
Glazing:

Net floor area (m²)

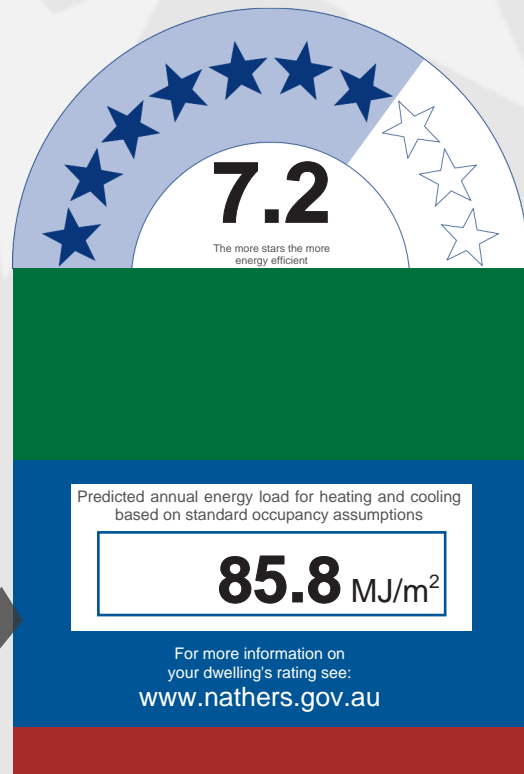
Conditioned: 108.1
Unconditioned: 4.9
Garage: -
TOTAL: 113

Annual thermal performance loads (MJ/m²)

Heating: 72.3
Cooling: 13.5
TOTAL: 85.8

Plan documents

Plan ref/date: -
Prepared by: -



Ceiling penetrations

(see following pages for details)

Sealed: 46
Unsealed: 0
TOTAL: 46

Principal downlight type: Compact fluorescent

****NOTE:** This total is the maximum number of ceiling penetrations allowed to a ceiling (under a roof) for this certificate. **If this number is exceeded in construction then this certificate IS NOT VALID and a new certificate is required.** Loss of ceiling insulation for the penetrations listed has been taken into account with the rating.

Window selection - default windows only

Note on allowable window values: Only a 5% tolerance to the nominated SHGC window values shown on page 2 can be used with this rating.

Note: Only a +/-5% SHGC tolerance is allowed with this rating.

NB: This tolerance ONLY applies to SHGC, the U-value can always be lower but not higher than the values stated on page 2.

If any of the windows selected are outside the 5% tolerance then this certificate is no longer valid and the dwelling will need to be rerated to confirm compliance.

Scan to access this certificate online and confirm this is valid.

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: D3JWNH5G0U

Date of Certificate: 5 Jul 2019

★ Star rating: 7.2

Building Features

Windows type and performance value

Window ID	Window type	U-value	SHGC
CAP-055-01 A	Capral 419 Flushline Fixed Window DG 6/12/6	3.54	0.61
CAP-057-01 A	Capral 900 Sliding Door DG 6/12/6	3.92	0.55
CAP-051-01 A	Capral 35 Awning in 400 Frame DG 6/12/6	4.98	0.46

Windows schedule

Window ID	Window no.	Height (mm)	Width (mm)	Orientation	Zone name	Outdoor shade
CAP-055-01 A	Opening 3	2700	2000	E	Kitchen/Living 1	No
CAP-057-01 A	Opening 2	2700	2350	N	Kitchen/Living 1	No
CAP-057-01 A	Opening 1	2700	4800	E	Kitchen/Living 1	No
CAP-051-01 A	Opening 4	2700	2500	E	Bedroom 2	No
CAP-051-01 A	Opening 5	2100	2150	S	Bedroom 3	No
CAP-051-01 A	Opening 6	2100	2150	S	Bedroom 4	No

Roof windows and skylight type and performance value

ID	Window type	U-value	SHGC
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Roof window and skylight schedule

ID	Roof window/ skylight no.	Area (m ²)	Orientation	Zone name	Outdoor shade	Indoor shade/ diffuser
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External wall type

Type	Insulation	Wall wrap
1 : 380Hawthorn - Plasterboard Int	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.8)	No
2 : 380Hawthorn - Lightweight Ext	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R2.5)	No
3 : 380Hawthorn - Concrete Int	Glass fibre batt (k = 0.044 density = 12 kg/m3) (R1.2)	No

External wall schedule

Wall type	Area (m ²)	Orientation	Zone name	Fixed shade	Eaves
1 : 380Hawthorn - Plasterboard Int	4.2	W	Kitchen/Living 1	No	No
2 : 380Hawthorn - Lightweight Ext	6.9	E	Kitchen/Living 1	No	No
2 : 380Hawthorn - Lightweight Ext	7	N	Kitchen/Living 1	Yes	Yes
2 : 380Hawthorn - Lightweight Ext	14.1	E	Kitchen/Living 1	Yes	Yes
1 : 380Hawthorn - Plasterboard Int	27.6	N	Kitchen/Living 1	No	No

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: **D3JWNH5G0U**

Date of Certificate: **5 Jul 2019**

★ Star rating: **7.2**

Building Features

2 : 380Hawthorn - Lightweight Ext	10.4	S	Bedroom 2	No	No
2 : 380Hawthorn - Lightweight Ext	8.2	E	Bedroom 2	Yes	No
2 : 380Hawthorn - Lightweight Ext	10	S	Bedroom 3	No	No
1 : 380Hawthorn - Plasterboard Int	5.5	W	Bedroom 4	No	No
3 : 380Hawthorn - Concrete Int	9.2	W	Bedroom 4	Yes	Yes
2 : 380Hawthorn - Lightweight Ext	9.1	S	Bedroom 4	No	No
1 : 380Hawthorn - Plasterboard Int	4.5	W	Ensuite	No	No
1 : 380Hawthorn - Plasterboard Int	4.6	S	Ensuite	No	No
1 : 380Hawthorn - Plasterboard Int	5	W	Bathroom	No	No

Internal wall type

Type	Area (m ²)	Insulation
1 : FR5 - Internal Plasterboard Stud Wall	78.2	

Floors

Location	Construction	Area (m ²)	Sub floor ventilation	Added insulation	Covering
Kitchen/Living 1	380Hawthorn - Concrete 200mm NIL	61.9	Enclosed	R0.0	Timber
Bedroom 2	380Hawthorn - Concrete 200mm NIL	11.6	Enclosed	R0.0	Carpet
Bedroom 3	380Hawthorn - Concrete 200mm NIL	11	Enclosed	R0.0	Carpet
Bedroom 4	380Hawthorn - Concrete 200mm NIL	16.8	Enclosed	R0.0	Carpet
Ensuite	380Hawthorn - Concrete 200mm NIL	6.8	Enclosed	R0.0	Tiles
Bathroom	380Hawthorn - Concrete 200mm NIL	4.9	Enclosed	R0.0	Tiles

Ceiling type

Location	Material	Added insulation	Roof space above
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Ceiling penetrations

Location	Number	Type	Width (mm)	Length (mm)	Seal/ unsealed
Kitchen/Living 1	1	Exhaust Fans	200	200	Sealed
Kitchen/Living 1	24	Downlights	80	80	Sealed
Bedroom 2	4	Downlights	80	80	Sealed
Bedroom 3	4	Downlights	80	80	Sealed
Bedroom 4	6	Downlights	80	80	Sealed
Ensuite	1	Exhaust Fans	200	200	Sealed

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: **D3JWNH5G0U**

Date of Certificate: **5 Jul 2019**

★ Star rating: **7.2**

Building Features

Ensuite	3	Downlights	80	80	Sealed
Bathroom	1	Exhaust Fans	200	200	Sealed
Bathroom	2	Downlights	80	80	Sealed

Ceiling fans

Location	Number	Diameter (mm)
----------	--------	---------------

Roof type

Material	Added insulation	Roof colour
Slab:Slab - Suspended Slab : 200mm: 200mm Suspended Slab	0.0	medium

Nationwide House Energy Rating Scheme* Certificate

Certificate Number: **D3JWNH5G0U**

Date of Certificate: **5 Jul 2019**

★ Star rating: **7.2**

Additional information

Explanatory notes

About this report

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Disclaimer

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Contact

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For more information on energy efficient design and insulation visit www.yourhome.gov.au

Appendix C: Renewable Energy

Solar PV

Inputs Solar PV

Peak Wattage of System	14.4 kWp
Azimuth	0 degrees
Inclination	10 degrees

Outputs Solar PV

Electricity Produced per Year	19,298 kWh
No. Panels Required	48
Total Roof Area Required	100 sqm
Annual Carbon Savings	25,281 kg CO ₂

Economic Output

Cost of System	21,600 \$
Annual Savings	3,860 \$
Simple Payback	6 Years

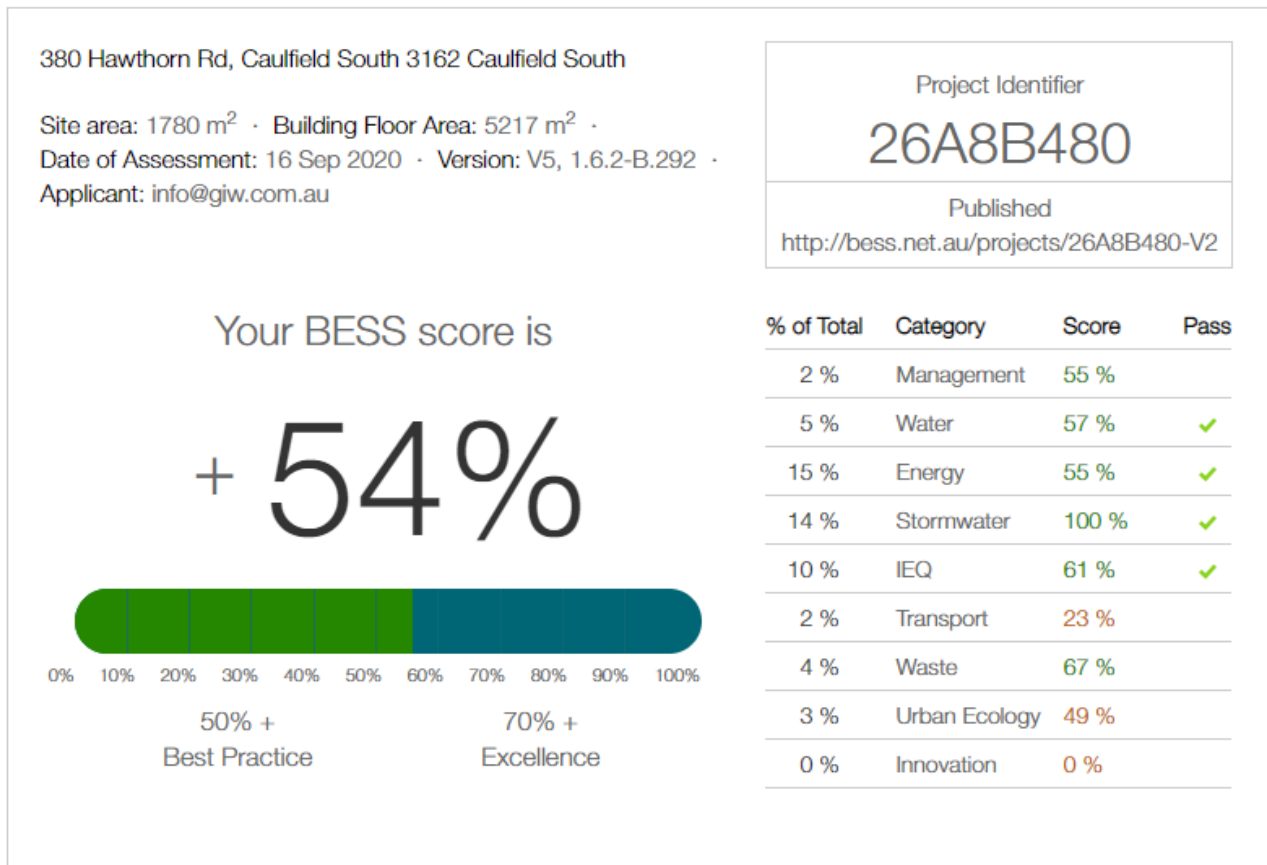
Annual Common Area Demand

Annual Demand Class 2 Non-Residential Areas	54,015 kWh/year
Annual Demand Carpark / Services	111,911 kWh/year
Total Annual Demand	165,926 kWh/year

Demand / Supply

Contribution Solar PV to Communal Area Power	12%
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Appendix D: BESS Assessment



BESS Report



This BESS report outlines the sustainable design commitments of the proposed development at 380 Hawthorn Rd Caulfield South VIC 3162. 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 Port Phillip 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.

380 Hawthorn Rd, Caulfield South 3162 Caulfield South

Site area: 1780 m² · Building Floor Area: 5217 m² ·

Date of Assessment: 16 Sep 2020 ·

Version: V5, 1.6.2-B.292 ·

Applicant: info@giw.com.au

Project Identifier

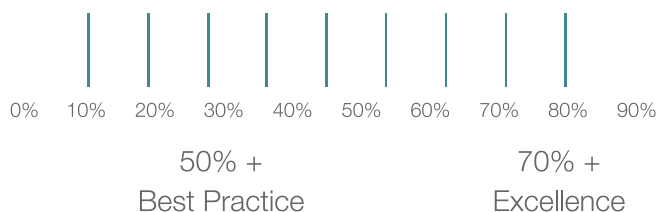
26A8B480

Published

<http://bess.net.au/projects/26A8B480-V2>

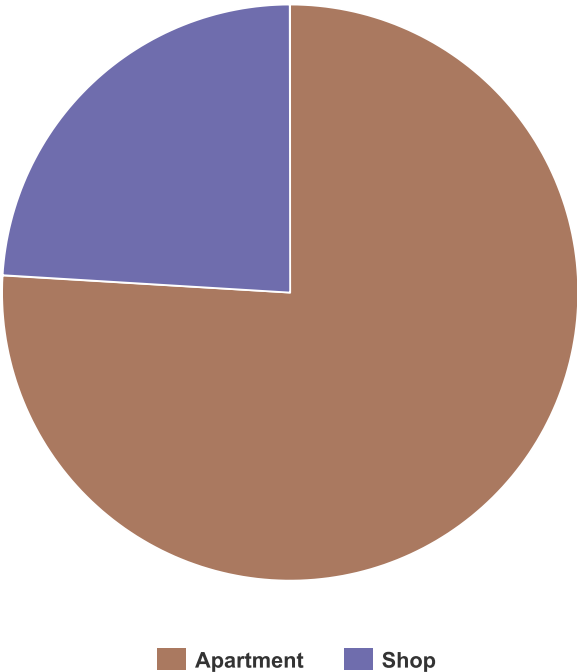
Your BESS score is

+ 54%



% of Total	Category	Score	Pass
2 %	Management	55 %	
5 %	Water	57 %	✓
15 %	Energy	55 %	✓
14 %	Stormwater	100 %	✓
10 %	IEQ	61 %	✓
2 %	Transport	23 %	
4 %	Waste	67 %	
3 %	Urban Ecology	49 %	
0 %	Innovation	0 %	

Building Composition



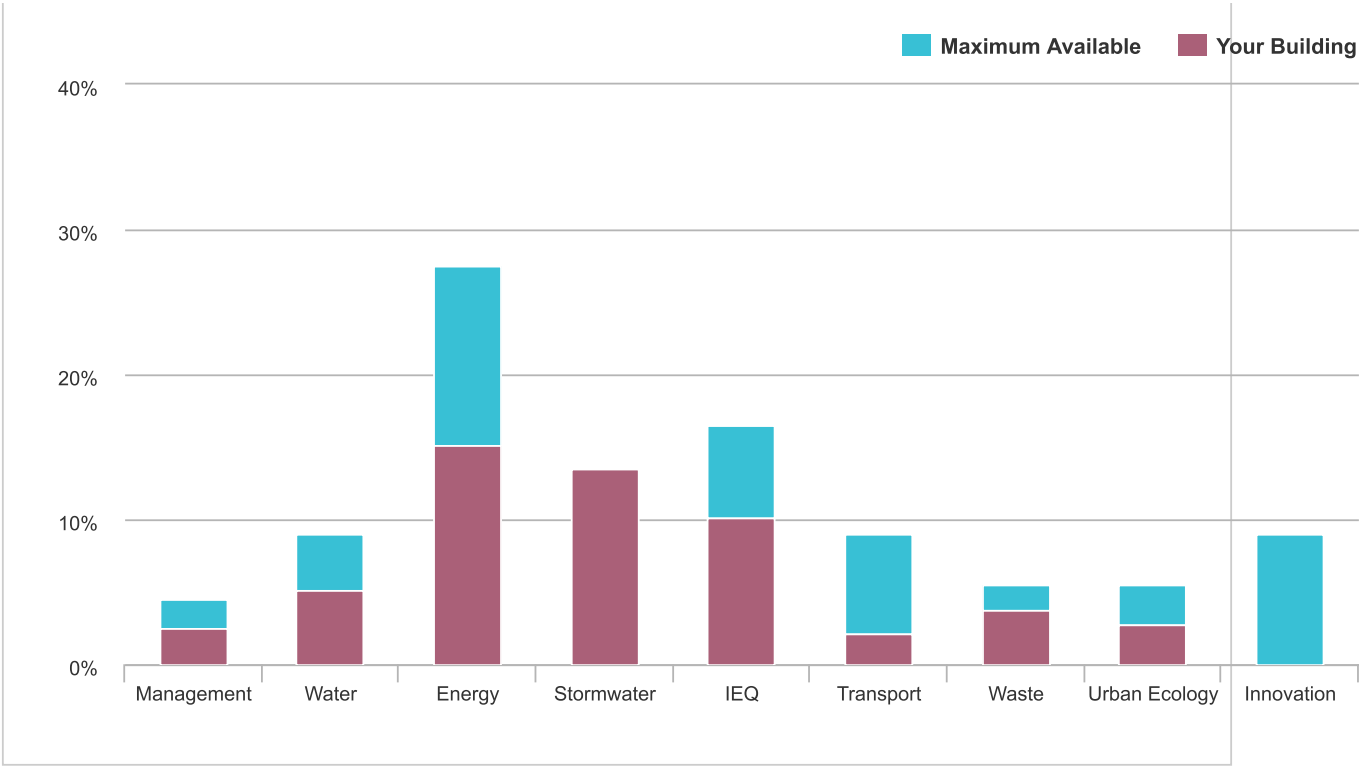
Dwellings

Type	Name	Quantity	Area
Apartment	L201, L210, L301, L310	4	103 m ²
Apartment	L202, L209, L302, L309	4	134 m ²
Apartment	L203, L208, L303, L308	4	107 m ²
Apartment	L204, L207, L304, L307	4	137 m ²
Apartment	L205, L206, L305, L306	4	101 m ²
Apartment	L401, L407, L501, L506	4	154 m ²
Apartment	L402, L406, L502, L505	4	115 m ²
Apartment	L403, L405, L503, L504	4	130 m ²
Apartment	L404	1	39 m ²

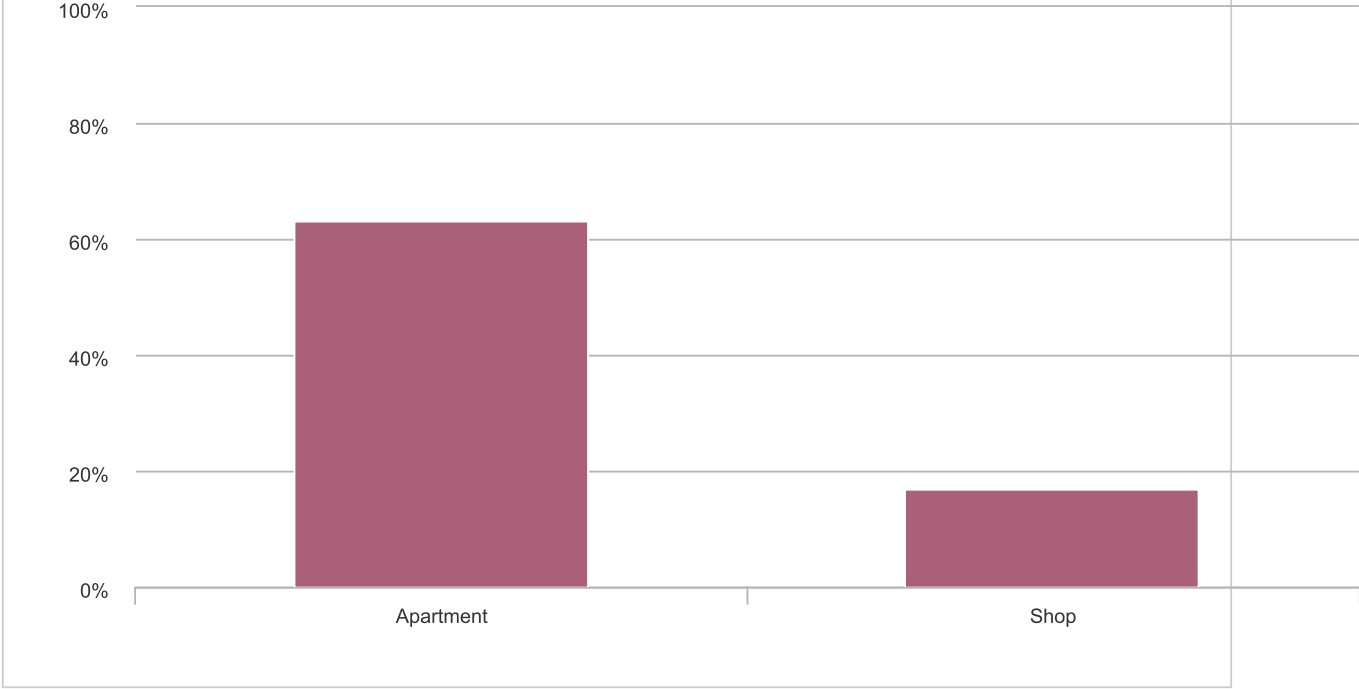
Non-Residential Spaces

Shop	1,254 m ²
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How did this Development Perform in each Environmental Category?



How does each Dwelling or Non-Residential Space type perform?



Sustainable design commitments by category

The sustainable design commitments for this project are listed below. These are to be incorporated into the design documentation and subsequently implemented.

Management

55% - contributing 2% to overall score

Credit	Disabled	Scoped out	Score
Management 2.2 Thermal Performance Modelling - Multi-Dwelling Residential			100 %
Management 3.1 Metering			100 %
Management 3.2 Metering			100 %
Management 3.3 Metering			100 %
Management 4.1 Building Users Guide			100 %

Management 2.2 Thermal Performance Modelling - Multi-Dwelling Residential

100%

Score Contribution	This credit contributes 18.4% towards this section's score.
Aim	To encourage and recognise developments that have used modelling to inform passive design at the early design stage

Questions

Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings? *

Apartment

Yes

Management 3.1 Metering

100%

Score Contribution	This credit contributes 9.2% towards this section's score.
Aim	To provide building users with information that allows monitoring of energy and water consumption

Questions

Have utility meters been provided for all individual dwellings? *

Apartment

Yes

Management 3.2 Metering

100%

Score Contribution This credit contributes 2.9% towards this section's score.

Aim To provide building users with information that allows monitoring of energy and water consumption

Questions

Have utility meters been provided for all individual commercial tenants? *

Shop

Yes

Management 3.3 Metering

100%

Score Contribution This credit contributes 12.1% towards this section's score.

Aim To provide building users with information that allows monitoring of energy and water consumption

Questions

Have all major common area services been separately submetered? *

Apartment

Yes

Shop

Yes

Management 4.1 Building Users Guide

100%

Score Contribution This credit contributes 12.1% towards this section's score.

Aim To encourage and recognise initiatives that will help building users to use the building efficiently

Questions

Will a building users guide be produced and issued to occupants? *

Project wide

Yes

Water

57% - contributing 5% to overall score

Credit	Disabled	Scoped out	Score
Water 1.1 Potable water use reduction			60 %
Water 3.1 Water Efficient Landscaping			100 %

Water Approachs

What approach do you want to use Water?	Use the built in calculation tools
Do you have a reticulated third pipe or an on-site water recycling system?	No
Are you installing a swimming pool?	No
Are you installing a rainwater tank?	Yes

Water fixtures, fittings and connections

	Shop	L201, L210, L301, L310	L202, L209, L302, L309
Showerhead	Scope out	4 Star WELS (≥ 6.0 but ≤ 7.5)	4 Star WELS (≥ 6.0 but ≤ 7.5)
Bath	Scope out	Scope out	Scope out
Kitchen Taps	≥ 6 Star WELS rating	≥ 6 Star WELS rating	≥ 6 Star WELS rating
Bathroom Taps	≥ 6 Star WELS rating	≥ 6 Star WELS rating	≥ 6 Star WELS rating
Dishwashers	≥ 5 Star WELS rating	≥ 5 Star WELS rating	≥ 5 Star WELS rating
WC	≥ 4 Star WELS rating	≥ 4 Star WELS rating	≥ 4 Star WELS rating
Urinals	Scope out	Scope out	Scope out
Washing Machine Water Efficiency	Scope out	≥ 5 Star WELS rating	≥ 5 Star WELS rating
Which non-potable water source is the dwelling/space connected to?	Tank 1	Tank 1	Tank 1

	Shop	L201, L210, L301, L310	L202, L209, L302, L309
Non-potable water source connected to Toilets	Yes	Yes	Yes
Non-potable water source connected to Laundry (washing machine)	No	No	No
Non-potable water source connected to Hot Water System	No	No	No
	L203, L208, L303, L308	L204, L207, L304, L307	L205, L206, L305, L306
Showerhead	4 Star WELS (≥ 6.0 but ≤ 7.5)	4 Star WELS (≥ 6.0 but ≤ 7.5)	4 Star WELS (≥ 6.0 but ≤ 7.5)
Bath	Scope out	Scope out	Scope out
Kitchen Taps	≥ 6 Star WELS rating	≥ 6 Star WELS rating	≥ 6 Star WELS rating
Bathroom Taps	≥ 6 Star WELS rating	≥ 6 Star WELS rating	≥ 6 Star WELS rating
Dishwashers	≥ 5 Star WELS rating	≥ 5 Star WELS rating	≥ 5 Star WELS rating
WC	≥ 4 Star WELS rating	≥ 4 Star WELS rating	≥ 4 Star WELS rating
Urinals	Scope out	Scope out	Scope out
Washing Machine Water Efficiency	≥ 5 Star WELS rating	≥ 5 Star WELS rating	≥ 5 Star WELS rating
Which non-potable water source is the dwelling/space connected to?	Tank 1	Tank 1	Tank 1
Non-potable water source connected to Toilets	Yes	Yes	Yes
Non-potable water source connected to Laundry (washing machine)	No	No	No
Non-potable water source connected to Hot Water System	No	No	No
	L401, L407, L501, L506	L402, L406, L502, L505	L403, L405, L503, L504
Showerhead	4 Star WELS (≥ 6.0 but ≤ 7.5)	4 Star WELS (≥ 6.0 but ≤ 7.5)	4 Star WELS (≥ 6.0 but ≤ 7.5)
Bath	Scope out	Scope out	Scope out
Kitchen Taps	≥ 6 Star WELS rating	≥ 6 Star WELS rating	≥ 6 Star WELS rating
Bathroom Taps	≥ 6 Star WELS rating	≥ 6 Star WELS rating	≥ 6 Star WELS rating
Dishwashers	≥ 5 Star WELS rating	≥ 5 Star WELS rating	≥ 5 Star WELS rating

	L401, L407, L501, L506	L402, L406, L502, L505	L403, L405, L503, L504
WC	>= 4 Star WELS rating	>= 4 Star WELS rating	>= 4 Star WELS rating
Urinals	Scope out	Scope out	Scope out
Washing Machine Water Efficiency	>= 5 Star WELS rating	>= 5 Star WELS rating	>= 5 Star WELS rating
Which non-potable water source is the dwelling/space connected to?	-1	-1	-1
Non-potable water source connected to Toilets	No	No	No
Non-potable water source connected to Laundry (washing machine)	No	No	No
Non-potable water source connected to Hot Water System	No	No	No

L404

Showerhead	4 Star WELS (>= 6.0 but <= 7.5)
Bath	Scope out
Kitchen Taps	>= 6 Star WELS rating
Bathroom Taps	>= 6 Star WELS rating
Dishwashers	>= 5 Star WELS rating
WC	>= 4 Star WELS rating
Urinals	Scope out
Washing Machine Water Efficiency	>= 5 Star WELS rating
Which non-potable water source is the dwelling/space connected to?	-1
Non-potable water source connected to Toilets	No
Non-potable water source connected to Laundry (washing machine)	No
Non-potable water source connected to Hot Water System	No

Rainwater Tanks

	Tank 1
Name	Tank 1
What is the total roof area connected to the rainwater tank?	Square Metres 1532.0
Tank Size	Litres 25000.0

Water 1.1 Potable water use reduction

60%

Score Contribution	This credit contributes 71.4% towards this section's score.
Aim	Water 1.1 Potable water use reduction (interior uses) What is the reduction in total water use due to efficient fixtures, appliances, and rainwater use? To achieve points in this credit there must be >25% potable water reduction. You are using the built in calculation tools. This credit is calculated from information you have entered above.
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.
Calculations	
Reference (kL) *	
Project wide	
	7057
Proposed (excluding rainwater and recycled water use) (kL) *	
Project wide	
	4511
Rainwater or recycled water supplied (Internal + External) (kL) *	
Project wide	
	692
Proposed (including rainwater and recycled water use) (kL) *	
Project wide	
	3819
% Reduction in Potable Water Consumption * Percentage %	
Project wide	
	45 %

Water 3.1 Water Efficient Landscaping

100%

Score Contribution	This credit contributes 14.3% towards this section's score.
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Aim

Are water efficiency principles used for landscaped areas? This includes low water use plant selection (e.g. xeriscaping). Note: food producing landscape areas and irrigation areas connected to rainwater or an alternative water source are excluded from this section.

Questions

Will water efficient landscaping be installed? *

Project wide

Yes

Energy

55% - contributing 15% to overall score

Credit	Disabled	Scoped out	Score
Energy 1.1 Thermal Performance Rating - Non-Residential			0 %
Energy 1.2 Thermal Performance Rating - Residential			17 %
Energy 2.1 Greenhouse Gas Emissions			76 %
Energy 2.3 Electricity Consumption			76 %
Energy 2.4 Gas Consumption			76 %
Energy 3.1 Carpark Ventilation			100 %
Energy 3.2 Hot Water			76 %
Energy 3.4 Clothes Drying			100 %
Energy 3.6 Internal Lighting - Residential Multiple Dwellings			100 %
Energy 3.7 Internal Lighting - Non-Residential			100 %
Energy 4.1 Combined Heat and Power (cogeneration / trigeneration)			N/A
Energy 4.2 Renewable Energy Systems - Solar			76 %

Dwellings Energy Approachs

What approach do you want to use for Energy?	Use the built in calculation tools
Are you installing a solar photovoltaic (PV) system?	Yes
Are you installing any other renewable energy system(s)?	No
Gas supplied into building	Natural Gas
Are you installing a cogeneration or trigeneration system?	No

Dwelling Energy Profiles

	L201, L210, L301, L310	L202, L209, L302, L309	L203, L208, L303, L308
Below the floor is	Another Occupancy	Another Occupancy	Another Occupancy
Above the ceiling is	Another Occupancy	Another Occupancy	Another Occupancy
Exposed sides	3	1	1
NatHERS Annual Energy Loads - Heat <small>MJ/sqm</small>	70.0	70.0	70.0
NatHERS Annual Energy Loads - Cool <small>MJ/sqm</small>	21.0	21.0	21.0
NatHERS star rating	6.5	6.5	6.5
Type of Heating System	D Reverse cycle space	D Reverse cycle space	D Reverse cycle space
Heating System Efficiency	3 Star	3 Star	3 Star
Type of Cooling System	Refrigerative space	Refrigerative space	Refrigerative space
Cooling System Efficiency	3 Stars	3 Stars	3 Stars
Type of Hot Water System	G Gas Storage 6 star	G Gas Storage 6 star	G Gas Storage 6 star
% Contribution from solar hot water system	0 %	0 %	0 %
Clothes Line	A No drying facilities	A No drying facilities	A No drying facilities
Clothes Dryer	H Clothes dryer 3 stars	H Clothes dryer 3 stars	H Clothes dryer 3 stars
	L204, L207, L304, L307	L205, L206, L305, L306	L401, L407, L501, L506
Below the floor is	Another Occupancy	Another Occupancy	Another Occupancy
Above the ceiling is	Another Occupancy	Another Occupancy	Another Occupancy
Exposed sides	2	1	2
NatHERS Annual Energy Loads - Heat <small>MJ/sqm</small>	70.0	70.0	70.0
NatHERS Annual Energy Loads - Cool <small>MJ/sqm</small>	21.0	21.0	21.0
NatHERS star rating	6.5	6.5	6.5
Type of Heating System	D Reverse cycle space	D Reverse cycle space	D Reverse cycle space
Heating System Efficiency	3 Star	3 Star	3 Star
Type of Cooling System	Refrigerative space	Refrigerative space	Refrigerative space
Cooling System Efficiency	3 Stars	3 Stars	3 Stars

	L204, L207, L304, L307	L205, L206, L305, L306	L401, L407, L501, L506
Type of Hot Water System	G Gas Storage 6 star	G Gas Storage 6 star	G Gas Storage 6 star
% Contribution from solar hot water system	0 %	0 %	0 %
Clothes Line	A No drying facilities	A No drying facilities	A No drying facilities
Clothes Dryer	H Clothes dryer 3 stars	H Clothes dryer 3 stars	H Clothes dryer 3 stars
	L402, L406, L502, L505	L403, L405, L503, L504	L404
Below the floor is	Another Occupancy	Another Occupancy	Another Occupancy
Above the ceiling is	Another Occupancy	Another Occupancy	Another Occupancy
Exposed sides	1	2	1
NatHERS Annual Energy Loads - Heat <small>MJ/sqm</small>	70.0	70.0	70.0
NatHERS Annual Energy Loads - Cool <small>MJ/sqm</small>	21.0	21.0	21.0
NatHERS star rating	6.5	6.5	6.5
Type of Heating System	D Reverse cycle space	D Reverse cycle space	D Reverse cycle space
Heating System Efficiency	3 Star	3 Star	3 Star
Type of Cooling System	Refrigerative space	Refrigerative space	Refrigerative space
Cooling System Efficiency	3 Stars	3 Stars	3 Stars
Type of Hot Water System	G Gas Storage 6 star	G Gas Storage 6 star	G Gas Storage 6 star
% Contribution from solar hot water system	0 %	0 %	0 %
Clothes Line	A No drying facilities	A No drying facilities	A No drying facilities
Clothes Dryer	H Clothes dryer 3 stars	H Clothes dryer 3 stars	H Clothes dryer 3 stars

Solar Photovoltaic systems

	PV 1
Name	PV 1
System Size (lesser of inverter and panel capacity) <small>kW peak</small>	14.4
Orientation (which way is the system facing)?	North
Inclination (angle from horizontal) <small>Angle (degrees)</small>	10.0
Which Building Class does this apply to?	Apartment

Energy 1.1 Thermal Performance Rating - Non-Residential

0%

Score Contribution	This credit contributes 9.1% towards this section's score.
Aim	Reduce reliance on mechanical systems to achieve thermal comfort in summer and winter - improving comfort, reducing greenhouse gas emissions, energy consumption, and maintenance costs.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2019 Section J)?

Energy 1.2 Thermal Performance Rating - Residential

17%

Score Contribution	This credit contributes 21.5% towards this section's score.
Aim	Reduce reliance on mechanical systems to achieve thermal comfort in summer and winter - improving comfort, reducing greenhouse gas emissions, energy consumption, and maintenance costs.
Criteria	What is the average NatHERS rating?

Calculations

Average NATHERS Rating (Weighted) * Stars

Apartment

6.5

Energy 2.1 Greenhouse Gas Emissions

76%

Score Contribution	This credit contributes 9.4% towards this section's score.
Aim	Reduce the building's greenhouse gas emissions
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?

Calculations

Reference Building with Reference Services (BCA only) * kg CO₂**Apartment**

207702.0

Proposed Building with Proposed Services (Actual Building) * kg CO₂

Apartment

73674.2

% Reduction in GHG Emissions * Percentage %

Apartment

64 %

Energy 2.3 Electricity Consumption 76%

Score Contribution	This credit contributes 9.4% towards this section's score.
Aim	Reduce consumption of electricity
Criteria	What is the % reduction in annual electricity consumption against the benchmark?

Calculations

Reference * kWh

Apartment

178003.8

Proposed * kWh

Apartment

56046.6

Improvement * Percentage %

Apartment

68 %

Energy 2.4 Gas Consumption 76%

Score Contribution	This credit contributes 9.4% towards this section's score.
Aim	Reduce consumption of gas
Criteria	What is the % reduction in annual gas consumption against the benchmark?

Calculations

Reference * MJ

Apartment

508523.8

Proposed * MJ

Apartment

321140.3

Improvement * Percentage %

Apartment

36 %

Energy 3.1 Carpark Ventilation 100%

Score Contribution This credit contributes 9.4% towards this section's score.

Questions

If you have an enclosed carpark, is it: (a) fully naturally ventilated (no mechanical ventilation system) or (b) 40 car spaces or less with Carbon Monoxide monitoring to control the operation and speed of the ventilation fans? *

Project wide

Yes

Energy 3.2 Hot Water 76%

Score Contribution This credit contributes 4.7% towards this section's score.

Criteria What is the % reduction in annual hot water system energy use (gas and electricity) against the benchmark?

Calculations

Reference * kWh

Apartment

141256.6

Proposed * kWh

Apartment

89205.6

Improvement * Percentage %

Apartment

36 %

Energy 3.4 Clothes Drying 100%

Score Contribution	This credit contributes 3.6% towards this section's score.
Criteria	Does the combination of clothes lines and efficient dryers reduce energy (gas+electricity) consumption by more than 10%?

Calculations

Reference * kWh

Apartment

19849.9

Proposed * kWh

Apartment

14298.6

Improvement * Percentage %

Apartment

27 %

Energy 3.6 Internal Lighting - Residential Multiple Dwellings 100%

Score Contribution	This credit contributes 7.2% towards this section's score.
Aim	Reduce energy consumption associated with internal lighting

Questions

Is the maximum illumination power density (W/m2) in at least 90% of the relevant building class at least 20% lower than required by Table J6.2a of the NCC 2019 Vol 1 (Class 2-9) and Clause 3.12.5.5 NCC 2019 Vol 2 (Class 1 & 10)? *

Apartment

Yes

Energy 3.7 Internal Lighting - Non-Residential

100%

Score Contribution	This credit contributes 2.3% towards this section's score.
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Aim	Reduce energy consumption associated with internal lighting
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Questions

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 J6.2a of the NCC 2019 Vol 1? *

Shop

Yes

Energy 4.1 Combined Heat and Power (cogeneration / trigeneration)

N/A

This credit was scoped out: No reason provided

This credit was disabled: No cogeneration or trigeneration system in use.

Aim	Reduce energy consumption
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Criteria	Does the CHP system reduce the class of buildings GHG emissions by more than 25%?
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Energy 4.2 Renewable Energy Systems - Solar

76%

Score Contribution	This credit contributes 4.7% towards this section's score.
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Aim	To encourage the installation of on-site renewable energy generation
------------	--

Criteria	Does the solar power system provide 5% of the estimated energy consumption of the building class it supplies?
-----------------	---

Calculations

Solar Power - Energy Generation per year * kWh

Apartment

17450.4

% of Building's Energy * Percentage %

Apartment

12 %

Stormwater

100% - contributing 14% to overall score

Credit	Disabled	Scoped out	Score
Stormwater 1.1 Stormwater Treatment			100 %
Which stormwater modelling are you using?	Melbourne Water STORM tool		
Stormwater 1.1 Stormwater Treatment			100%
Score Contribution	This credit contributes 100.0% towards this section's score.		
Aim	To achieve best practice stormwater quality objectives through reduction of pollutant load (suspended solids, nitrogen and phosphorus)		
Criteria	Has best practice stormwater management been demonstrated?		

Questions

STORM score achieved *

Project wide

109

Calculations

Min STORM Score *

Project wide

100

IEQ

61% - contributing 10% to overall score

Credit	Disabled	Scoped out	Score
IEQ 1.1 Daylight Access - Living Areas			100 %
IEQ 1.2 Daylight Access - Bedrooms			100 %
IEQ 1.4 Daylight Access - Non-Residential			33 %

IEQ 1.5 Daylight Access - Minimal Internal Bedrooms 100 %

Use the BESS Deemed to Satisfy (DtS) method for IEQ? Yes

Are all living areas and bedrooms less than 8m deep (5m if south facing)? Yes

Do all living areas and bedrooms have a floor-to-ceiling height of at least 2.7m? Yes

Does all glazing to living areas achieve at least 60% Visible Light Transmittance (VLT)? Yes

Do all living areas have an external facing window (not into a courtyard, light well or other major obstruction)? Yes

Does the building(s) comply with the requirements of the building separation tables? Yes

What approach do you want to use for IEQ? Use the built in calculation tools

IEQ 1.1 Daylight Access - Living Areas 100%

Score Contribution This credit contributes 25.1% towards this section's score.

Aim To provide a high level of amenity and energy efficiency through design for natural light.

Criteria What % of living areas achieve a daylight factor greater than 1%

IEQ 1.2 Daylight Access - Bedrooms 100%

Score Contribution This credit contributes 25.1% towards this section's score.

Aim To provide a high level of amenity and energy efficiency through design for natural light.

Criteria What % of bedrooms achieve a daylight factor greater than 0.5%

IEQ 1.4 Daylight Access - Non-Residential 33%

Score Contribution This credit contributes 7.9% towards this section's score.

Aim To provide a high level of amenity and energy efficiency through design for natural light.

Criteria What % of the nominated floor area has at least 2% daylight factor?

Questions

% Achieved ? *

Shop

30 %

IEQ 1.5 Daylight Access - Minimal Internal Bedrooms

100%

Score Contribution

This credit contributes 8.4% towards this section's score.

Aim

To provide a high level of amenity and energy efficiency through design for natural light and ventilation.

Questions

Do at least 90% of dwellings have an external window in all bedrooms? *

Apartment

Yes

Transport

23% - contributing 2% to overall score

Credit

Disabled Scoped out Score

Transport 1.2 Bicycle Parking - Residential Visitor

100 %

Transport 1.4 Bicycle Parking - Non-Residential

100 %

Transport 1.2 Bicycle Parking - Residential Visitor

100%

Score Contribution

This credit contributes 17.3% towards this section's score.

Aim

To encourage and recognise initiatives that facilitate cycling

Criteria

Is there at least one visitor bicycle space per 5 dwellings?

Questions

Visitor Bicycle Spaces Provided ? *

Apartment

8

Calculations

Min Visitor Bicycle Spaces Required *

Apartment

7

Transport 1.4 Bicycle Parking - Non-Residential

100%

Score Contribution	This credit contributes 5.5% towards this section's score.
Aim	To encourage and recognise initiatives that facilitate cycling
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)?

Questions

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)? *

Shop

Yes

Bicycle Spaces Provided ? *

Shop

4

Waste

67% - contributing 4% to overall score

Credit	Disabled	Scoped out	Score
Waste 2.1 - Operational Waste - Food & Garden Waste			100 %
Waste 2.2 - Operational Waste - Convenience of Recycling			100 %

Waste 2.1 - Operational Waste - Food & Garden Waste

100%

Score Contribution	This credit contributes 33.3% towards this section's score.
Aim	To minimise organic waste going to landfill

Questions

Are facilities provided for on-site management of food and garden waste? *

Project wide

Yes

Waste 2.2 - Operational Waste - Convenience of Recycling

100%

Score Contribution

This credit contributes 33.3% towards this section's score.

Aim

To minimise recyclable material going to landfill

Questions

Are the recycling facilities at least as convenient for occupants as facilities for general waste? *

Project wide

Yes

Urban Ecology

49% - contributing 3% to overall score

Credit	Disabled	Scoped out	Score
Urban Ecology 1.1 Communal Spaces			76 %
Urban Ecology 2.1 Vegetation			50 %
Urban Ecology 2.4 Private Open Space - Balcony / Courtyard Ecology			100 %
Urban Ecology 3.1 Food Production - Residential			100 %

Urban Ecology 1.1 Communal Spaces

76%

Score Contribution

This credit contributes 11.4% towards this section's score.

Aim

To encourage and recognise initiatives that facilitate interaction between building occupants

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?

Questions

Common space provided * Square Metres

Apartment

285.5

Calculations

Minimum Common Space Required * Square Metres

Apartment

68

Shop

87

Urban Ecology 2.1 Vegetation

50%

Score Contribution

This credit contributes 45.7% towards this section's score.

Aim

To encourage and recognise the use of vegetation and landscaping within and around developments

Criteria

How much of the site is covered with vegetation, expressed as a percentage of the total site area?

Questions

Percentage Achieved ? * Percentage %

Project wide

10 %

Urban Ecology 2.4 Private Open Space - Balcony / Courtyard Ecology

100%

Score Contribution

This credit contributes 8.7% towards this section's score.

Aim

Encourage plants to be grown on balconies and courtyards

Questions

Is there a tap and floor waste on every balcony / in every courtyard? *

Apartment

Yes

Urban Ecology 3.1 Food Production - Residential

100%

Score Contribution	This credit contributes 8.7% towards this section's score.
Aim	To encourage the production of fresh food on-site
Criteria	Is there at least 0.25m ² of space per resident dedicated to food production?

Questions

Food Production Area * Square Metres

Apartment

28.4

Calculations

Min Food Production Area * Square Metres

Apartment

22

Innovation

0% - contributing 0% to overall score

Items to be marked on floorplans

0 / 19 floorplans & elevation notes complete.

Management 3.1: Individual utility meters annotated	Incomplete
Management 3.2: Individual utility meters annotated	Incomplete
Management 3.3: Common area submeters annotated	Incomplete
Water 3.1: Water efficient garden annotated	Incomplete
Energy 3.1: Carpark with natural ventilation or CO monitoring system	Incomplete
Energy 3.4: Clothes line annotated (if proposed)	Incomplete

Energy 4.2: Floor plans showing location of photovoltaic panels as described.	Incomplete
Stormwater 1.1: Location of any stormwater management systems used in STORM or MUSIC modelling (e.g. Rainwater tanks, raingarden, buffer strips)	Incomplete
IEQ 1.1: If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.	Incomplete
IEQ 1.2: If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.	Incomplete
IEQ 1.5: Floor plans with compliant bedrooms marked	Incomplete
Transport 1.2: All nominated residential visitor bicycle parking spaces	Incomplete
Transport 1.4: All nominated non-residential bicycle parking spaces	Incomplete
Waste 2.1: Location of food and garden waste facilities	Incomplete
Waste 2.2: Location of recycling facilities	Incomplete
Urban Ecology 1.1: Size and location of communal spaces	Incomplete
Urban Ecology 2.1: Vegetated areas	Incomplete
Urban Ecology 2.4: Taps and floor waste on balconies / courtyards	Incomplete
Urban Ecology 3.1: Food production areas	Incomplete

Documents and evidence

0 / 11 supporting evidence documentation complete.

Management 2.2: Preliminary NatHERS assessments	Incomplete
Energy 1.1: Energy Report showing calculations of reference case and proposed buildings	Incomplete
Energy 3.1: Provide a written explanation of either the fully natural carpark ventilation or carbon monoxide monitoring, describing how these systems will work, what systems are required for them to be fully integrated and who will be responsible for their implementation throughout the design, procurement and operational phases of the building life.	Incomplete
Energy 3.6: Provide a written description of the average lighting power density to be installed in the development and specify the lighting type(s) to be used.	Incomplete
Energy 3.7: Provide a written description of the average lighting power density to be installed in the development and specify the lighting type(s) to be used.	Incomplete
Energy 4.2: Specifications of the solar photovoltaic system(s).	Incomplete
Stormwater 1.1: STORM report or MUSIC model	Incomplete
IEQ 1.1: If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.	Incomplete

IEQ 1.2: If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.	Incomplete
IEQ 1.4: A short report detailing assumptions used and results achieved.	Incomplete
IEQ 1.5: A list of compliant bedrooms	Incomplete

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