

Hope and Autumn

ESD Report Sustainability Management Plan

Prepared for: Hope & Autumn Pty Ltd

Project No: MEL4293
Date: 15 May 2025
Revision: 06

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Project: Hope and Autumn
Location: 51-53 Hope Street and 66-76 Autumn Street, Geelong West 3218
Prepared by: ADP Consulting Pty Ltd
Level 13, 55 Collins Street
Melbourne VIC 3000
Project No: MEL4293
Revision: 06
Date: 15 May 2025

Rev	Date	Comment	Author	Signature	Technical Review	Signature	Authorisation & QA	Signature
01	30/09/2024	Draft	Mila Amey	MA	Bhargavi Balamurali Mysore	BB	Vickie Huang	VH
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Executive Summary

The following report provides an overview of the environmentally sustainable development (ESD) strategy for the proposed residential development at 51-53 Hope Street and 66-76 Autumn Street, Geelong West, within the municipal boundaries of the City of Greater Geelong.

The objective of this report is to describe how best practice ESD will be incorporated into the development including targets and proposed design approaches, and to demonstrate that the development meets or exceeds the standards required by the Greater Geelong City Council Planning Scheme.

Greater Geelong Planning Scheme

The City of Greater Geelong has objectives and strategies relating to ESD which are contained in the Greater Geelong Planning Scheme,

- > Clause 15.01-2L Environmentally sustainable development
- > Clause 53.18-5 Stormwater Management Objectives

These policies and objectives have been taken into consideration throughout this assessment and in our advice given to the applicant. Overall, the proposed ESD initiatives of this development will meet the Council's overarching goal of promoting sustainable design and buildings. ADP Consulting has used the Built Environment Sustainability Scorecard (BESS) to benchmark the design's potential ESD performance under each key ESD criteria including management, water and energy efficiency, stormwater, indoor environment quality (IEQ), sustainable transport, waste urban ecology, and innovation.

These policies and objectives have been taken into consideration throughout this assessment and in our advice given to the applicant. Overall, the proposed ESD initiatives of this development will meet the Council's overarching goal of promoting sustainable design and buildings. The proposed development is currently targeting **74 points out of 100 in BESS**, which equates to Excellence.

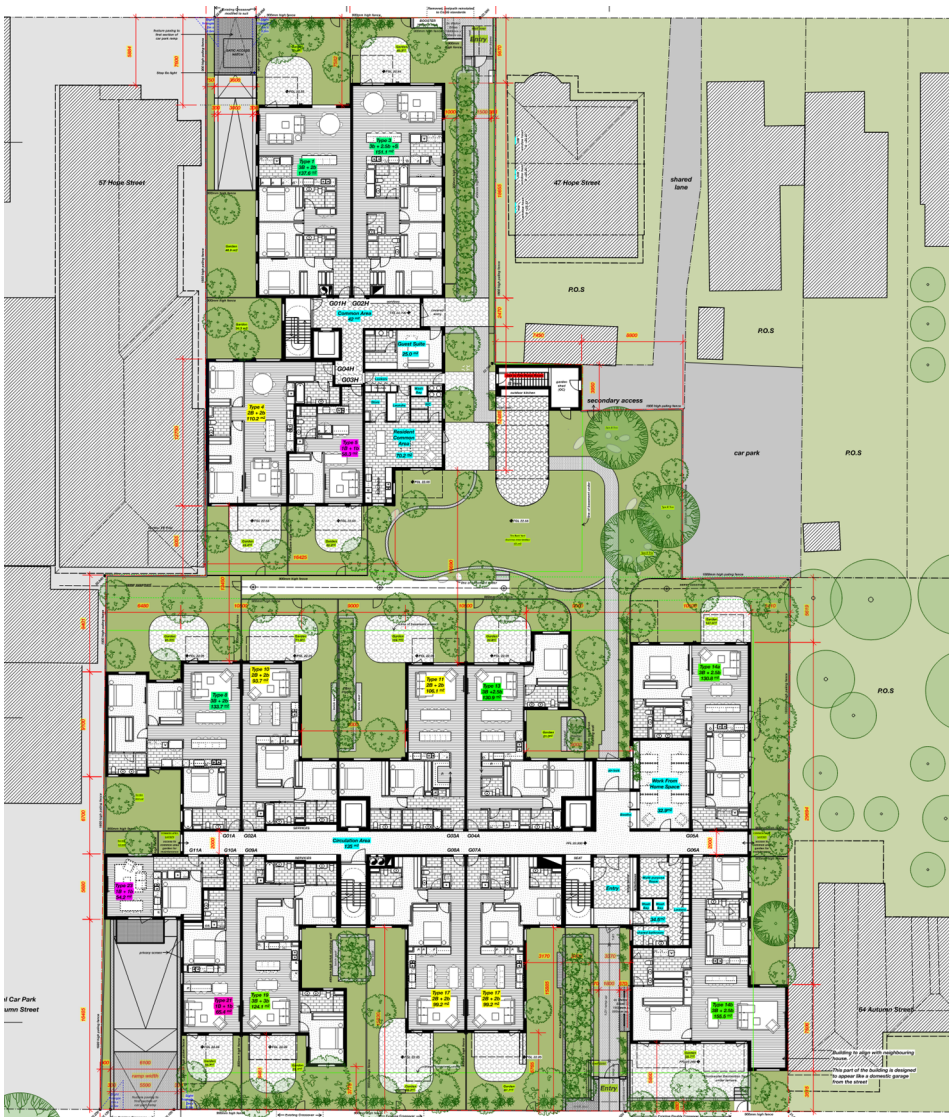
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1. Introduction

This report provides an overview of the ecologically sustainable design (ESD) strategy for the proposed development at 51-53 Hope Street and 66-76 Autumn Street, Geelong West 3218. The development consists of residential apartments across a South building, Hope and a North building, Autumn. The project is proposed to be an all-electric development. The objective of this report is to describe how excellence in ESD will be incorporated in the development, including targets and proposed design approaches, and to demonstrate that the development meets or exceeds the standards required by Geelong City Council, specifically the commitment to achieve 74% in the Built Environment Sustainability Scorecard (BESS).

Figure 1 Site Plan of Hope and Autumn



1.1 Site Overview

The site is located at 51-53 Hope Street and 66-76 Autumn Street, Geelong West, 3218. The proposed development consists of 57 dwellings across 4 levels and 1 basement levels. It comprises of the following:

- > Residential amenities including a rooftop terrace, communal nook, and a guest suite.
- > 16 dwellings for the North Building and 41 dwellings for the South Building.
- > Bike parking in the Basement.
- > Car parking in the Basement.
- > Courtyard and communal backyard on the ground floor.

1.2 Statutory Context

1.2.1 City of Greater Geelong

The site is situated within Geelong West within the municipal boundaries of the City of Greater Geelong. The City of Greater Geelong has objectives and strategies relating to ESD which are contained in the Greater Geelong Planning Scheme,

- > Clause 15.01-2L Environmentally sustainable development
- > Clause 53.18-5 Stormwater Management Objectives

These policies and objectives have been taken into consideration throughout this assessment and in our advice given to the applicant at 51-53 Hope Street and 66-76 Autumn Street, Geelong West.

Overall, the proposed ESD initiatives of this development will meet the Council's overarching goal of promoting sustainable design and buildings.

15.01-2L Environmentally sustainable development

Under clause 15.02-2L Environmentally sustainable development, it is mandated that a residential development of 10 or more dwellings must demonstrate:

- > Sustainability Management Plan (including an assessment using BESS, STORM, Greenstar Music or other methods) and a Green Travel Plan.

53.18-5 Stormwater Management Objectives

The stormwater management system should be designed to:

- > Meet the current best practice performance objectives for stormwater quality as contained in the *Urban Stormwater – Best Practice Environmental Management Guidelines* (Victorian Stormwater Committee, 1999)
- > Minimise the impact of chemical pollutants and other toxicants including, but not limited to, bundling and covering or roofing of storage, loading, and work areas.
- > Contributing to cooling, improving local habitat, and providing attractive and enjoyable spaces.

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1.3 Sustainable Design Assessment in the Planning Process (SDAPP)

The city of Greater Geelong adopts the Sustainable Design Assessment in the Planning Process (SDAPP) framework which ensures the consistent inclusion of environmental performance considerations into planning permit approvals. The framework identifies 9 key sustainable design criteria that need to be addressed as follows:

- > Ongoing building and site management
- > Water resources
- > Energy efficiency
- > Stormwater management
- > Indoor environment quality (IEQ)
- > Transport
- > Waster Management
- > Innovation

The Built Environment Sustainability Scorecard (BESS) has been utilised to benchmark the environmental performance of the project. The proposal has the preliminary design potential to achieve a BESS score of excellence. The score is **74**.

1.3.1 Documentation

This report has been informed by the Architectural drawings produced by Austin Maynard Architects, dated 30/01/2025 issued for Planning Approval.

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2. ESD Initiatives

The following section provides details of the ESD initiatives which have been deemed potentially suitable for the project. These form the overall benchmarking assessment of the building. These initiatives are currently adopted or under consideration; best endeavours will be made to include these in the fully developed design.

2.1 Management

The SDAPP 'Management' category encourages and rewards the adoption of practices and processes that enable and support best practice sustainability outcomes throughout the different phases of a project's design, construction and its ongoing operation.



Throughout the 'Management' category, SDAPP intends to improve the sustainability performance of a project by influencing areas where decision-making is critical. This category rewards the implementation of processes and strategies that support positive sustainability outcomes during construction. The category also promotes practices that ensure a project will be used to its optimum operational potential. The 'Management' category rewards projects that achieve the following outcomes:

- > Coordinated approaches
- > Commitment to implementation
- > Sustainable cultures and behaviours

Table 1 Building Management Actions

Action	Response-Strategies and Innovation	Responsible Entity	Project Phase
Engage ESD Professional	> ADP Consulting will be appointed as the ESD Consultant from schematic design to construction to completion.	> ADP Consulting	> Design
Thermal Performance Modelling – Multi-Dwelling Residential	> Preliminary thermal modelling has been undertaken to ensure the residential apartments achieve: <ul style="list-style-type: none"> – An average NatHERS rating of at least 7 stars and a minimum rating of 6 stars has been targeted. – Preliminary NatHERS assessment will be undertaken to ensure all dwellings will have a maximum cooling load of 30MJ/m². 	> ADP Consulting	> Design
Metering	> Utility meters provided for all individual dwellings. > All major common area services to be separately sub-metered.	> Services Engineer	> Design > Construction

Action	Response-Strategies and Innovation	Responsible Entity	Project Phase
Building Users Guide	<ul style="list-style-type: none"> > A building user's guide will be developed for use by the occupants. The building design and ESD commitments will be reviewed to identify the systems and processes that the occupants and owners interact with. The building user's guide will be a booklet or pamphlet with simple language to encourage the most sustainable use of the development. 	<ul style="list-style-type: none"> > Builder 	<ul style="list-style-type: none"> > Completion & Handover

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2.2 Water



The SDAPP 'Water' category aims to encourage and reward initiatives that reduce the consumption of potable water through measures such as the incorporation of water efficient fixtures and building systems and water re-use.

Reductions in operational water consumption may be achieved through the maximisation of water-efficiency within a project, as well as through the utilisation of reclaimed water sources.

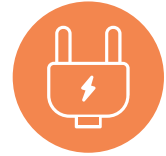
The 'Water' category rewards projects that achieve the following outcomes:

- > The selection of equipment that is more water efficient than comparable standard practice equivalents;
- > The use of water-efficient supplementary equipment;
- > The selection of water-efficient toilets taps and showers.

Table 2 Water Efficiency Actions

Action	Response-Strategies and Innovation	Responsible Entities	Project Phase
Rainwater Collection & Reuse	<ul style="list-style-type: none"> > 15,000 L rainwater tank proposed. Rainwater collected from 518.2 m² of non-trafficable roof area from the North Building and reused for toilet flushing. > 32,000 L rainwater tank proposed. Rainwater collected from 1230.6 m² of non-trafficable roof area from the South Building and reused for toilet flushing. 	<ul style="list-style-type: none"> > Architect > Services Engineer > Builder 	<ul style="list-style-type: none"> > Design > Construction
Potable Water Use Reduction	<ul style="list-style-type: none"> > Water efficient fittings, fixtures, and appliances (WELS ratings): <ul style="list-style-type: none"> – Showers: 5 Stars – Kitchen Taps: 5 Stars – Bathroom Taps: 5 Stars – Dishwashers: 5 Stars (if provided) – Toilets: 4 Stars 	<ul style="list-style-type: none"> > Architect > Builder 	<ul style="list-style-type: none"> > Design > Construction
Water Efficient Landscaping	<ul style="list-style-type: none"> > Drought tolerant plants will be installed in landscaping and planter boxes to reduce potable water usage for irrigation. 	<ul style="list-style-type: none"> > Landscape Architect 	<ul style="list-style-type: none"> > Design > Construction

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2.3 Energy

The SDAPP 'Energy' category aims to reward projects that are designed and constructed to reduce their overall operational energy consumption below that of a comparable standard practice building. Such reductions are directly related to reduced greenhouse gas emissions, lower overall energy demand as well as reductions in operating costs for building owners and occupants.

Through the 'Energy' category, SDAPP aims to ensure reductions in greenhouse gas emissions by facilitating efficient energy usage and encouraging the utilisation of energy generated by low-emission sources.

The 'Energy' category rewards projects that achieve the following outcomes:

- > The implementation of well-designed systems, aimed at lower operating emissions;
- > The selection of high efficiency equipment over less energy efficient alternatives.
- > The implementation of well-designed and zoned lighting that is energy efficient and appropriate for a space's use;
- > The use of efficient supplementary equipment; and
- > The procurement of zero carbon and low carbon energy sources.

Table 3 Energy Efficiency Actions

Action	Response-Strategies and Innovation	Responsible Entity	Project Phase
Renewable Energy Systems	> 50 solar panels each with a capacity of 500W have been installed on the rooftop which equates to a total system of 25kW.	> Architect > Services Engineer > Builder	> Design > Construction
Greenhouse Gas Emissions	> 39% reduction in annual greenhouse gas emissions against the benchmark for residential projects.	> ADP Consulting > Architect	> Design
Thermal Performance Rating – NatHERS	> The development will achieve an average NatHERS rating of at least 7 stars. > Refer to Appendix B Preliminary NatHERS for further details.	> ADP Consulting > Architect	> Design
Dwelling Energy Profiles	> Minimum 4-star energy rating heating and cooling systems. > Installation of electric heat pump hot water system.	> Services Engineer > Builder	> Design > Construction
Electrification	> The development will use electricity only.	> ADP Consulting > Services Engineer	> Design > Construction
Energy Consumption	> 71% reduction in annual energy consumption against the benchmark.	> ADP Consulting > Architect	> Design

Action	Response-Strategies and Innovation	Responsible Entity	Project Phase
Internal Lighting Residential	<ul style="list-style-type: none"> > The maximum illumination power density (W/m²) in at least 90% of the area is at least 20% lower than the requirements in Table J6.2a of the NCC 2022 Vol 1: <ul style="list-style-type: none"> – Car Park – 2W/m² – Common areas and corridors – 4.5W/m² – Entry lobby – 9W/m² – Office – 4.5W/m² – Stairways – 2W/m² 	<ul style="list-style-type: none"> > Lighting Designer > Builder 	<ul style="list-style-type: none"> > Design > Construction

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2.4 Stormwater



The SDAPP 'Stormwater' category aims to ensure projects are responsibly treating stormwater to reduce the amount of polluted stormwater run-off entering local waterways such as; rivers, streams, wetlands and bays. This can be achieved by the following water sensitive urban design strategies (WSUD); rainwater tanks, raingardens, porous paving and landscaping.

To demonstrate compliance, with best practise performance objectives, the stormwater management strategy for the site has been modelled with the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software – see Appendix A for results. These results demonstrate that the following has been achieved:

- > Suspended solids – 80% retention of typical urban load
- > Total Nitrogen – 45% retention of typical urban load
- > Total Phosphorous – 45% retention of typical urban load
- > Litter – 70% reduction of typical urban load

Table 4 Stormwater Management Actions

Action	Response-Strategies and Innovation	Responsible Entities	Project Phase
Stormwater Treatment	<ul style="list-style-type: none"> > Meets the current best practice performance objectives for stormwater quality. > Stormwater collection from 518.2 m² of non-trafficable roof area from the North building and stored in 15,000 L rainwater tank for toilet flushing reuse. > Stormwater collection from 1,230.6 m² of non-trafficable roof area from the South building and stored in 32,000 L rainwater tank for toilet flushing reuse. > Refer to Appendix A for further details. 	<ul style="list-style-type: none"> > Architect > ADP Consulting > Builder 	<ul style="list-style-type: none"> > Design > Construction

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2.5 Indoor Environment Quality



The SDAPP 'Indoor Environment Quality' category aims to encourage and reward initiatives that enhance the comfort and well-being of occupants. The credits within this category address issues such as natural daylight, air quality and thermal comfort.

Through the 'Indoor Environment Quality' category, SDAPP aims to achieve sustainability performance improvements in a manner that also improves occupants' experience of the space. While it is possible to reduce a project's energy intensity by simply providing occupants with poor lighting quality for example, the 'Indoor Environment Quality' category recognises that buildings are designed for people and that reductions in energy use should never be made at the expense of the occupants' health and wellbeing.

By rewarding both energy efficiency and encouraging occupant well-being, the BESS rating system promotes and rewards a holistic approach to sustainability that results in multiple benefits.

The 'Indoor Environment Quality' category rewards projects that achieve the following outcomes:

- > Increased comfort and wellbeing
- > Reduced exposure to pollutants

Table 5 Indoor Environment Quality Actions

Action	Response-Strategies and Innovation	Responsible Entities	Project Phase
Daylight – Residential	<ul style="list-style-type: none"> > All apartments comply with either BESS Deemed-to-Satisfy OR built-in calculator tool to achieve daylight credit points. > Glazing with VLT of at least 0.60 to be selected. > Refer to Appendix B for further details. 	<ul style="list-style-type: none"> > Architect > Builder 	<ul style="list-style-type: none"> > Design > Construction
Daylight Access – Minimal Internal Bedrooms	<ul style="list-style-type: none"> > At least 90% of dwellings have an external window in all bedrooms. 	<ul style="list-style-type: none"> > Architect > ADP Consulting 	<ul style="list-style-type: none"> > Design > Construction
Effective Natural Ventilation	<ul style="list-style-type: none"> > At least 60% of dwellings are effectively naturally ventilated across the three buildings. 	<ul style="list-style-type: none"> > Architect > ADP Consulting 	<ul style="list-style-type: none"> > Design > Construction
Shading	<ul style="list-style-type: none"> > External Awnings are provided to doors and glazing on balconies. > Refer to architectural elevation drawings 	<ul style="list-style-type: none"> > Architect > ADP Consulting 	<ul style="list-style-type: none"> > Design > Construction

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2.6 Transport



The SDAPP 'Transport' category aims to reward projects that facilitate a reduction of the dependency of occupants on private car use as an important means of reducing overall greenhouse gas emissions. The use of motor vehicles directly contributes to climate change in two ways - through the high amounts of energy required to produce cars and build and maintain supporting road transport infrastructure and services; and the direct emissions that result from car operations.

If reliance on individual motor vehicle transportation is to be reduced, it is necessary to maximise alternative transportation options. Rather than limiting access to private fossil fuel vehicles, the 'Transport' category aims to encourage and reward initiatives that reduce the need for their use. This may include initiatives that encourage the use of public transport options, cycling or walking, and the selection of sites that are close to local amenities.

The 'Transport' category rewards projects that achieve the following outcomes:

- > The selection of sites that have readily accessible public transport options;
- > The selection of sites within close proximity of a diversity of amenities;
- > The facilitation and encouragement of the use of alternative transport options, such as bicycles or electric vehicles.

Table 6 Transport Actions

Action	Response-Strategies and Innovation	Responsible Entities	Project Phase
Bicycle Parking	<ul style="list-style-type: none"> > The development provides a total of 20. > 14 bikes for residents and 6 for visitors. 	<ul style="list-style-type: none"> > Architect > Builder 	<ul style="list-style-type: none"> > Design > Construction
Electric Vehicle Infrastructure	<ul style="list-style-type: none"> > 100% of car parking spaces to include provisions for chargers, per NCC 2022 	<ul style="list-style-type: none"> > Architect > Builder 	<ul style="list-style-type: none"> > Design > Construction

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2.7 Waste



The SDAPP 'Waste & Materials' category aims to address the consumption of resources within a building construction context, by encouraging the selection of lower-impact materials. The category also encourages absolute reductions in the amount of waste generated or the recycling of as much of the waste generated as possible.

The 'Materials' category rewards projects that achieve the following outcomes:

- > Use of products and materials with lower impact
- > Reduction in waste to landfill

Table 7 Waste and Materials Actions

Action	Response-Strategies and Innovation	Responsible Entity	Project Phase
Operational Waste – Food & Garden	> Provision of organic food waste composter for residential use to reduce food waste	> Architect	> Design
Operational Waste - Convenience of Recycling	> Recycling facilities located next to general waste facilities for convenience.	> Architect	> Design

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2.8 Land Use & Ecology

The SDAPP 'Land Use & Ecology' category aims to reduce the negative impacts on sites' ecological value as a result of urban development and reward projects that minimise harm and enhance the quality of local ecology.



The 'Land Use & Ecology' category rewards projects that achieve the following outcomes:

- > Site sustainability.
- > Reducing ecological impacts from occupied sites.

Table 8 Urban Ecology Actions

Action	Response-Strategies and Innovation	Responsible Entity	Project Phase
Communal Spaces	> A total of 93 m ² of communal space was provided as per BESS best practice.	> Landscape Architect > Builder	> Design > Construction
Vegetation	> Approximately 37% of the site is covered in vegetation.	> Landscape Architect > Builder	> Design > Construction
Private Open Space – Balcony/Courtyard Ecology	> There is a tap and floor waste on every balcony and courtyard.	> Architect > Builder	> Design > Construction

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2.9 Innovation

The SDAPP 'Innovation' category aims to is to encourage design features and technologies that are not recognised elsewhere within BESS because they are new to Victoria, or because they go well beyond the best practice standard in BESS.

The Innovation category recognises design features and technologies that deliver environmental and social benefits and are either:

- > new to the area where the development is situated, or
- > exceed best practice standards in one or more of the other key sustainable building categories

Table 9 Innovation Actions

Action	Response-Strategies and Innovation	Responsible Entity	Project Phase
Low VOC and Formaldehyde levels	> All paints, adhesives, sealants and carpets (if installed) applied on-site as part of the proposed works shall meet the maximum Total Volatile Organic Compound (TVOC) limits outlined in Appendix E.	> Architect > Builder	> Design > Construction
	> All engineered wood products including particleboard, plywood, Medium Density Fibreboard (MDF), Laminated Veneer Lumber (LVL), High-Pressure Laminate (HPL), Compact Laminate and decorative overlaid wood panels used as part of the proposed works shall meet the Formaldehyde emission limits outlined in Appendix F.	> Architect > Builder	> Design > Construction
Exceeding Minimum NatHERs rating	> The current average rating of the development is exceeding the minimum 7-star average rating.	> Architect > ESD Consultant	> Design > Construction

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3. BESS Assessment Summary

BESS provides a framework for benchmarking the ESD achievement of a building design. The tool includes credits under a range of categories which may be used to guide ESD and tally a score that corresponds to the following benchmarks:

- > +50% – Best Practice
- > +70% – Excellence

A BESS assessment has been completed for the development to provide a guide to the sustainability initiatives that will be implemented in the design.

In summary, the development achieves a total BESS score of 74 out of 100. This highlights the high commitment to sustainable development in the design of the building.

Table 10 BESS Summary

SDAPP Criteria	Score Achieved
Management	100%
Water	50%
Energy	99%
Stormwater	100%
IEQ	81%
Transport	22%
Waste	66%
Urban Ecology	66%
Innovation	20%
BESS SCORE	74%

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Appendix A

STORM Report

A.1 Storm Assessment Methodology

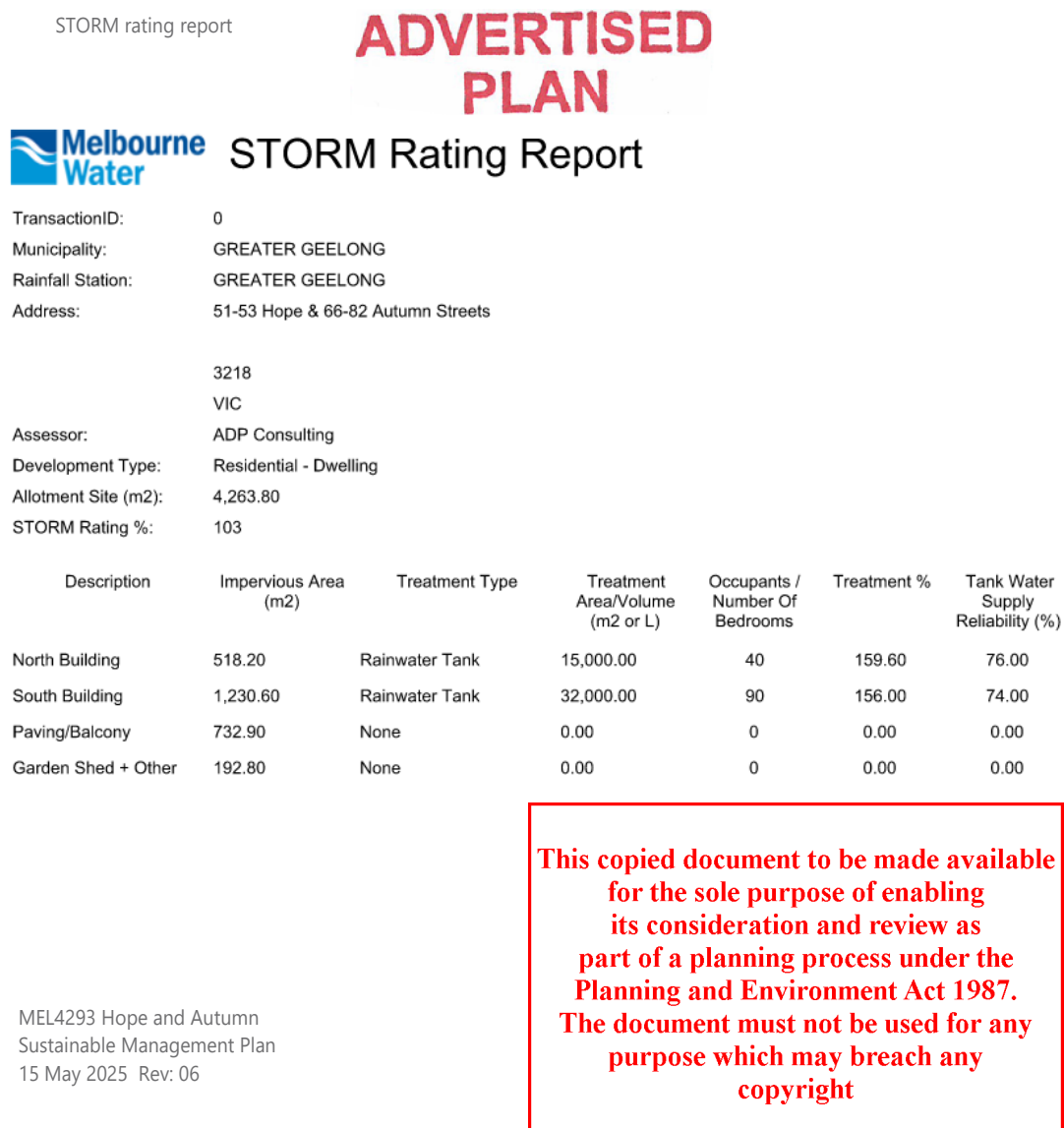
City of Geelong's Stormwater Treatment Objective – Relative Measure (STORM) Calculator is a simple analysis method for stormwater treatment and water sensitive urban design (WSUD). It rates the performance of treatment measures such as rainwater tanks, wetlands, and infiltration systems relative to best practice targets, and calculates a weighted average score. A STORM score of 100 or greater indicates that treatment measures are of sufficiently high standard.

To demonstrate compliance, a score of 100% must be achieved using the Stormwater Treatment Objective – Relative Measure (STORM) tool, demonstrating that the following has been achieved:

- > Suspended solids – 80% retention of typical urban load
- > Total Nitrogen – 45% retention of typical urban load
- > Total Phosphorous – 45% retention of typical urban load
- > Litter – 70% reduction of typical urban load

As design progresses, the site stormwater management strategy will consider flows from the development as well as the streets, driveways and other impervious surfaces. The overall stormwater strategy will be detailed in the civil engineer's WSUD report and will be designed to ensure that council's best practice targets are met. The development achieves a STORM rating of 103% as shown in Figure 2.

Figure 2 STORM rating report



A minimum 15,000L rainwater tank capacity for the north building and 32,000L for the south building is assessed for the site, capturing runoff from roof areas. It is expected that retention tanks are connected to toilets within the development for flushing purposes, and irrigation systems. The final rainwater tank capacity will take into consideration the expected on-site consumption and benefits towards potable water reduction, as well as best practice stormwater objectives.

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STORM MARKUP
(reflected from floors above)

LEGEND

- North Building (non-trafficable) - 518.2 sq m
South Building (non-trafficable) - 1230.6 sq m
Paving + Balconies (trafficable) - 732.9.0 sq m
Landscape - 1566.24 sq m
Garden Shed+Other (non-trafficable) - 192.8 sq m

STORM TANK SIZE
(See page 2 for storm assessment)

Tank Size North Building - 15kL
Tank Size South Building - 32kL

This is subject to change as per
spatial availability.



General Notes:
1. These drawings are to be read in conjunction with the Urban Context Report prepared by Austin Maynard Architects, and the following consultant team reports;
Treat Planning Report
ADP Consulting Engineering Sustainability Management Plan
Plume Studio Landscape Architect Design
Traffic Group Traffic Engineering Assessment Green Travel Plan Waste Management Plan
Swanson Surveying Title Re-establishment & Feature Survey
Tree Logic Arborist Report
2. All POS areas are provided with a garden tap, stormwater drainage & a weatherproof electricity outlet.
3. All landscaping areas are to be irrigated. The irrigation system is to be supplied with water collected onsite.
4. All Roof Areas, excluding balconies, are to be directed into the Rain Water tanks located within the basement. Refer to STORM Assessment.
5. Rainwater tanks to be used for irrigation and WC flushing. Refer SMR.
6. Refer to the SMP for WELS ratings of plumbing fixtures.
7. Refer to the SMP for Nuthers ratings of the proposed apartments and note the commitment to exceed the minimum requirements of the NCC.
8. Refer to the SMP for Wattage per m2 requirements for the apartment areas.
9. All external lights are to be on motion sensors, including those within the basement.
10. Refer to the SMP for details of cross ventilation compliance under BESS.
11. All parking bays to have access to EV charging via a food management device.
Plan Key:
F = Fridge
P = Pantry
S = Store
L = Laundry
HW = Habitable Room Window

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Hope & Autumn

project name

Wadawurrung People

traditional owners

51-53 Hope & 66-76 Autumn
Streets, Geelong West 3218

address

Up Property

client

Plan: Roof Plan

drawing

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Appendix B

Preliminary NatHERS CAN

Consultant Advice Notice

From	Radhika Gupta	Advice No.	CAN No-02
Project	Hope and Autumn	Project No.	MEL4293
Date	7 February 2025	Pages	1/3
Subject	Preliminary NatHERS Assessment	Revision:	04

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Introduction

The purpose of this Consultant Advice Notice (CAN) is to provide Hope and Autumn key project stakeholders with preliminary NatHERS results in accordance with the Town Planning (TP) documentation set dated 30/01/2025.

Assumptions of Current Design

Tabulated below, are the assumptions used to rate this development per the current architectural drawings. Changes to any of the listed assumptions may alter the performance and invalidate the energy rating details in this report.

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Table 1 Building Fabric Construction Assumptions

Building Element	Assumptions
Floor Construction (Between apartments)	> Suspended concrete slab
Floor Construction (Floors adjacent to basement/car park)	> Suspended concrete slab > R2.0 added insulation
Floor coverings	> Tiles (bathrooms, laundry, entranceways) > Carpet (bedrooms) > Timber (living, kitchen)
Ceiling Construction (Between apartments)	> Suspended concrete slab
Pitched roofs	> R5.0 added insulation
Roof Construction (Flat roofs / below terraces)	> Suspended concrete slab > R5.0 added insulation + Single sided foil
Wall Construction (External)	> Colourbond Steel > Total insulation value inclusive of added insulation, R4.4
Wall Construction (Between Corridors and Communal areas)	> Lightweight > R1.5
Wall Construction (Internal within Apartments)	> Lightweight > Uninsulated

The following table details the modelling inputs of the glazing details:

Table 2 Glazing modelling assumptions

Window Type	U-value (W/m ² . K) *	SHGC *
All window types	≤3.0	0.29 (±10%)

*Note: The values listed above are whole window system values (as per WERS), not glazing only.

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Performance

Results

The results show an average NatHERS rating of 8.4 Stars and a minimum of 6.9 Stars, exceeding minimum compliance requirements and showing best practice outcomes for residential apartments in Victoria. Table 3 shows the summary results.

Table 3 : Results for 10% of apartments across the Hope and Autumn development

Reference	Unit Number	Type	Bedrooms	Level	Heating Load	Cooling load	Total	Star Rating
1	G01 - North	3+2	3	GL	40.5	2.4	42.9	8.9
2	G06 - South	3+2	3	GL	77.2	3.5	80.7	7.6
3	106 – South	3+3	3	L1	40.5	6.6	46.6	8.8
4	111 - South	2+2	3	L1	40.6	1.9	42.5	8.9
5	202 - South	2+2	2	L2	23.6	3.5	27.1	9.5
6	204 - North	1+1	1	L2	27.1	6.1	33.2	9.3
7	302 - North	2+2	2	L3	89.8	1	90.8	7.3
8	302 – South	3+3	3	L3	99	2.7	101.7	6.9
Minimum					23.6	1	27.1	6.9
Maximum					99	6.6	101.7	9.5
Average					54.7	3.46	58.25	8.4

Performance for a 9 Star NatHERS Average

If a 9-star NatHERS average is the desired target for the project, a typical apartment should perform well above 8 stars to outweigh the performance of lower performing apartments.

In this case, a typical apartment as shown above performing at 8.4 stars with the alterations recommended is expected to provide buffer to other apartment types.

While it is challenging to determine the full extent of changes required for an 8-star NatHERS target from this small sample of apartments, the full design alterations applied in these models reflect the likely fabric requirements needed to perform for the building overall.

Radhika Gupta
Sustainability Consultant
ADP Consulting Pty Ltd

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Appendix C PV Assessment

C.1 Solar PV System

The solar photovoltaic system will be situated on the roof, ensuring uninterrupted solar access. The electricity generated will offset the base building power usage, and the system will be managed by the embedded network provider.

A 25kW PV installation is around 50 x 500W panels, each panel measuring roughly 1.1m x 2.2m. Final PV capacity will be confirmed after design has progressed further and spatial coordination between services has been completed.

The figure below shows the tentative location of the solar panels based on the radiance study conducted.

RESULTS		
33,538 kWh/Year*		
 Print Results		
Month	Solar Radiation (kWh / m ² / day)	AC Energy (kWh)
January	6.89	3,964
February	6.43	3,394
March	5.61	3,369
April	4.16	2,438
May	3.04	1,893
June	2.69	1,642
July	2.80	1,787
August	3.53	2,220
September	4.51	2,693
October	5.32	3,201
November	5.53	3,193
December	6.52	3,743
Annual	4.75	33,537

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Location and Station Identification

Requested Location	autum street melbourne
Weather Data Source	Lat, Lng: -37.75, 144.94 1.2 mi
Latitude	37.75° S
Longitude	144.94° E

PV System Specifications

DC System Size	25 kW
Module Type	Standard
Array Type	Fixed (open rack)
System Losses	14.08%
Array Tilt	20°
Array Azimuth	0°
DC to AC Size Ratio	1.2
Inverter Efficiency	96%
Ground Coverage Ratio	0.4
Albedo	From weather file
Bifacial	No (0)
Monthly Irradiance Loss	Jan Feb Mar Apr May June
	0% 0% 0% 0% 0% 0%
	July Aug Sept Oct Nov Dec
	0% 0% 0% 0% 0% 0%

Performance Metrics

DC Capacity Factor	15.3%
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Hope & Autumn

project name

Wadawurrung People

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51-53 Hope & 66-76 Autumn
 Streets, Geelong West 3218

address

Up Property

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Plan: Roof Plan

drawing

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Hope Street

Autumn Street

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Appendix D

BESS Report

BESS Report

Built Environment Sustainability Scorecard

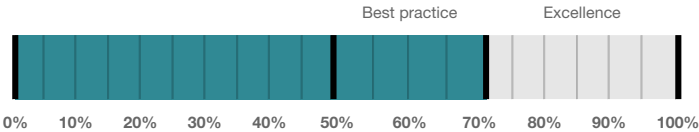
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This BESS report outlines the sustainable design commitments of the proposed development at 51-53 Hope Steet and 66-76 Autumn Street Geelong West Victoria 3218. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Greater Geelong City Council.

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

Your BESS Score



74%

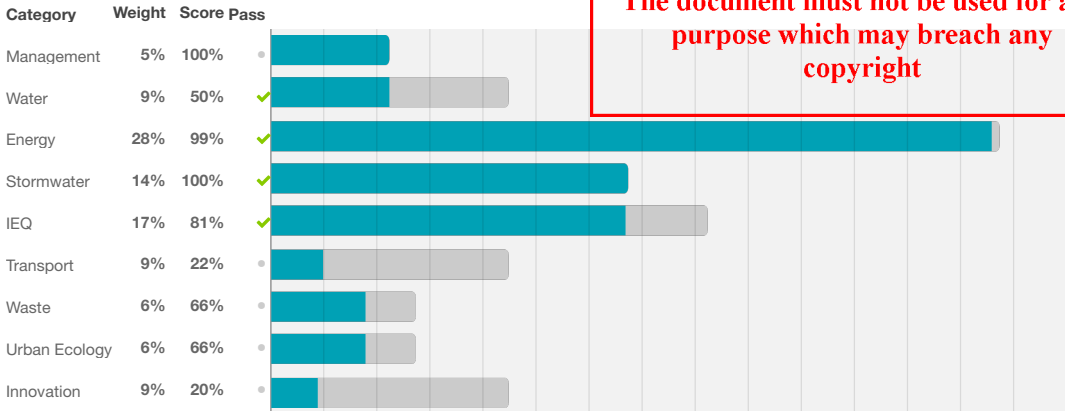
Project details

Name	51-53 Hope Street and 66-76 Autumn Street, Geelong West VIC 3218, Australia
Address	51-53 Hope Steet and 66-76 Autumn Street Geelong West Victoria 3218
Project ID	66675498-R7
BESS Version	BESS-8
Site type	Multi unit development (apartment building)
Account	sustainabilityteam@adpconsulting.com.au
Application no.	
Site area	6,005 m ²
Building floor area	6,000 m ²
Date	15 May 2025
Software version	2.1.0-B.596



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Performance by category



Buildings

Name	Height	Footprint	% of total footprint
51-53 Hope Street	3	608 m²	29%
66-76 Autumn Street	3	1,476 m²	70%

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Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	Building	% of total area
Apartment				
G02-202	3	151 m²	51-53 Hope Street	7%
G08-110-308-404	4	100 m²	66-76 Autumn Street	6%
G01-101-301	3	133 m²	66-76 Autumn Street	6%
G01-201	3	138 m²	51-53 Hope Street	6%
G04-104-304	3	106 m²	66-76 Autumn Street	5%
G03-103-303	3	106 m²	66-76 Autumn Street	5%
G04-204	3	102 m²	51-53 Hope Street	5%
G09-111	2	126 m²	66-76 Autumn Street	4%
G07-109	2	126 m²	66-76 Autumn Street	4%
G02-102-302	3	91.4 m²	66-76 Autumn Street	4%
G10-112-310	3	65.4 m²	66-76 Autumn Street	3%
108-306	2	96.8 m²	66-76 Autumn Street	3%
309-405	2	103 m²	66-76 Autumn Street	3%
105-305	2	96.8 m²	66-76 Autumn Street	3%
105-205	2	91.8 m²	51-53 Hope Street	3%
G03-203	3	61.7 m²	51-53 Hope Street	3%
G11-113-311	3	54.4 m²	66-76 Autumn Street	2%
G06	1	128 m²	66-76 Autumn Street	2%
G05	1	128 m²	66-76 Autumn Street	2%
402	1	157 m²	66-76 Autumn Street	2%
401	1	152 m²	66-76 Autumn Street	2%
302	1	120 m²	51-53 Hope Street	2%
301	1	163 m²	51-53 Hope Street	2%
307	1	104 m²	66-76 Autumn Street	1%
107	1	87.3 m²	66-76 Autumn Street	1%
406	1	82.4 m²	66-76 Autumn Street	1%
106	1	87.3 m²	66-76 Autumn Street	1%
403	1	85.3 m²	66-76 Autumn Street	1%
Total	57	6,000 m²	100%	

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Supporting Evidence**Shown on Floor Plans**

Credit	Requirement	Response	Status
Management 3.1	Annotation: Individual utility meters to be provided to all individual dwellings		-
Management 3.3	Annotation: Sub-meters to be provided to all major common area services (list each)		-
Water 3.1	Annotation: Water efficient garden details		-
Energy 3.1	Carpark with natural ventilation or CO monitoring system		-
Energy 3.4	Location of clothes line (if proposed)		-
Energy 4.2	Location and size of solar photovoltaic system		-
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
IEQ 1.1	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
IEQ 1.2	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
IEQ 1.5	Floor plans with compliant bedrooms marked		-
IEQ 2.1	Dwellings meeting the requirements for being 'naturally ventilated'		-
Transport 2.1	Location of electric vehicle charging infrastructure		-
Waste 2.1	Location of food and garden waste facilities		-
Waste 2.2	Location of recycling facilities		-
Urban Ecology 1.1	Location and size of communal spaces		-
Urban Ecology 2.1	Location and size of vegetated areas		-
Urban Ecology 2.4	Location of taps and floor waste on balconies / courtyards		-

Supporting Documentation

Credit	Requirement	Response	Status
Management 2.2	Preliminary NatHERS assessments		-
Energy 3.1	Details of either the fully natural carpark ventilation or CO monitoring system proposed		-
Energy 3.6	Average lighting power density and lighting type(s) to be used		-
Energy 4.2	Specifications of the solar photovoltaic system(s)		-
Stormwater 1.1	STORM report or MUSIC model		-
IEQ 1.1	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
IEQ 1.2	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
IEQ 1.5	A list of compliant bedrooms		-
IEQ 2.1	A list of naturally ventilated dwellings		-

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Credit summary

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Management Overall contribution 4.5%

		100%
1.1 Pre-Application Meeting		100%
2.2 Thermal Performance Modelling - Multi-Dwelling Residential		100%
3.1 Metering - Residential		100%
3.3 Metering - Common Areas		100%
4.1 Building Users Guide		100%

Water Overall contribution 9.0%

		Minimum required 50%	50%	✓ Pass
1.1 Potable Water Use Reduction			50%	
3.1 Water Efficient Landscaping			100%	
4.1 Building Systems Water Use Reduction			0%	

Energy Overall contribution 27.5%

		Minimum required 50%	99%	✓ Pass
1.2 Thermal Performance Rating - Residential			95%	✓ Achieved
2.1 Greenhouse Gas Emissions			100%	
2.6 Electrification			100%	
2.7 Energy consumption			100%	
3.1 Carpark Ventilation			100%	
3.4 Clothes Drying			100%	
3.6 Internal Lighting - Apartments			100%	
4.2 Renewable Energy Systems - Solar			100%	
4.4 Renewable Energy Systems - Other			N/A	✗ Scoped Out
No other (non-solar PV) renewable energy is in use.				

Stormwater Overall contribution 13.5%

		Minimum required 100%	100%	✓ Pass
1.1 Stormwater Treatment			100%	

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IEQ Overall contribution 16.5%

		Minimum required 50%	81%	✓ Pass
1.1 Daylight Access - Living Areas			100%	
1.2 Daylight Access - Bedrooms			100%	
1.3 Winter Sunlight			0%	
1.5 Daylight Access - Minimal Internal Bedrooms			100%	
2.1 Effective Natural Ventilation			66%	

Transport Overall contribution 9.0%

			22%	
1.1 Bicycle Parking - Residential			0%	
1.2 Bicycle Parking - Residential Visitor			0%	
1.3 Bicycle Parking - Convenience Residential			0%	⊗ Disabled
				Credit 1.1 must be achieved first.
2.1 Electric Vehicle Infrastructure			100%	
2.2 Car Share Scheme			0%	
2.3 Motorbikes / Mopeds			0%	

Waste Overall contribution 5.5%

			66%	
1.1 - Construction Waste - Building Re-Use			0%	
2.1 - Operational Waste - Food & Garden Waste			100%	
2.2 - Operational Waste - Convenience of Recycling			100%	

Urban Ecology Overall contribution 5.5%

			66%	
1.1 Communal Spaces			100%	
2.1 Vegetation			100%	
2.2 Green Roofs			0%	
2.3 Green Walls and Facades			0%	
2.4 Private Open Space - Balcony / Courtyard Ecology			100%	
3.1 Food Production - Residential			0%	

Innovation Overall contribution 9.0%

			20%	
1.1 Innovation			20%	

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Credit breakdown**ADVERTISED
PLAN****Management Overall contribution 4.5%**

	100%
--	------

1.1 Pre-Application Meeting	100%
Score Contribution	This credit contributes 37.5% towards the category score.
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?
Question	Criteria Achieved ?
Project	Yes
2.2 Thermal Performance Modelling - Multi-Dwelling Residential	100%
Score Contribution	This credit contributes 25% towards the category score.
Criteria	Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings?
Question	Criteria Achieved ?
Apartment	Yes
3.1 Metering - Residential	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have utility meters been provided for all individual dwellings?
Question	Criteria Achieved ?
Apartment	Yes
3.3 Metering - Common Areas	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have all major common area services been separately submetered?
Question	Criteria Achieved ?
Apartment	Yes
4.1 Building Users Guide	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Will a building users guide be produced and issued to occupants?
Question	Criteria Achieved ?
Project	Yes

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Water Overall contribution 9.0%

		Minimum required 50%	50%	✔ Pass
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Water Approach	
What approach do you want to use for 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
Fixtures, fittings & connections profile	
Showerhead: All	4 Star WELS (>= 4.5 but <= 6.0)
Bath:	
G01-201	Scope out
G03-203	
105-205	
301	
401	
402	
403	
G08-110-308-404	
309-405	
106	
108-306	
406	
G07-109	
307	
G10-112-310	
G11-113-311	
G02-202	Default or unrated
G04-204	
302	
G01-101-301	
G02-102-302	
G03-103-303	
G04-104-304	
G05	
105-305	
G06	
107	
G09-111	
Kitchen Taps: All	>= 5 Star WELS rating
Bathroom Taps: All	>= 5 Star WELS rating
Dishwashers: All	>= 5 Star WELS rating
WC: All	>= 4 Star WELS rating
Urinals: All	Scope out
Washing Machine Water Efficiency: All	Occupant to Install

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Which non-potable water source is the dwelling/space connected to?:

G01-201
G02-202
G03-203
G04-204
105-205
301
302

North Building (15kL)

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G01-101-301
401
G02-102-302
402
G03-103-303
403
G04-104-304
G08-110-308-404
G05
105-305
309-405
G06
106
108-306
406
G07-109
107
307
G09-111
G10-112-310
G11-113-311

South Building (32kL)

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Non-potable water source connected to Toilets: All Yes

Non-potable water source connected to Laundry (washing machine): All No

Non-potable water source connected to Hot Water System: All No

Rainwater tank profile**What is the total roof area connected to the rainwater tank?:**

North Building (15kL)

518 m²

South Building (32kL)

1,231 m²**Tank Size:**

North Building (15kL)

15,000 Litres

South Building (32kL)

32,000 Litres

Irrigation area connected to tank:

North Building (15kL)

0.0 m²

South Building (32kL)

0.0 m²**Is connected irrigation area a water efficient garden?:**

North Building (15kL)

No

South Building (32kL)

No

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Other external water demand connected to tank?:

North Building (15kL)

-

South Building (32kL)

-

1.1 Potable Water Use Reduction

50%

Score Contribution

This credit contributes 71.4% towards the category score.

Criteria

What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.

Output

Reference

Project

8820 kL

Output

Proposed (excluding rainwater and recycled water use)

Project

6713 kL

Output

Proposed (including rainwater and recycled water use)

Project

5900 kL

Output

% Reduction in Potable Water Consumption

Project

33 %

Output

% of connected demand met by rainwater

Project

97 %

Output

How often does the tank overflow?

Project

Never / Rarely

Output

Opportunity for additional rainwater connection

Project

3169 kL

3.1 Water Efficient Landscaping

100%

Score Contribution

This credit contributes 14.3% towards the category score.

Criteria

Will water efficient landscaping be installed?

Question

Criteria Achieved ?

Project

Yes

4.1 Building Systems Water Use Reduction

0%

Score Contribution

This credit contributes 14.3% towards the category score.

Criteria

Where applicable, have measures been taken to reduce potable water consumption by >80% in the buildings air-conditioning chillers and when testing fire safety systems?

Question

Criteria Achieved ?

Project

No

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Energy Overall contribution 27.5%

	Minimum required 50%	99%	✔ Pass
--	----------------------	-----	--------

Dwellings Energy Approach	
What approach do you want to use for Dwellings?:	Use the built in calculation tools
Are you installing any solar photovoltaic (PV) system(s)?:	Yes
Are you installing any other renewable energy system(s)?:	No
Energy Supply:	All-electric
Dwelling Energy Profiles	
Building:	
G01-201	51-53 Hope Street
G02-202	
G03-203	
G04-204	
105-205	
301	
302	
G01-101-301	66-76 Autumn Street
401	
G02-102-302	
402	
G03-103-303	
403	
G04-104-304	
G08-110-308-404	
G05	
105-305	
309-405	
G06	
106	
108-306	
406	
G07-109	
107	
307	
G09-111	
G10-112-310	
G11-113-311	

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Below the floor is:	
G01-201	Ground or Carpark
G02-202	
G03-203	
G04-204	Another Occupancy
105-205	
301	
302	
G01-101-301	
401	
G02-102-302	
402	
G03-103-303	
403	
G04-104-304	
G08-110-308-404	
G05	
105-305	
309-405	
G06	
106	
108-306	
406	
G07-109	
107	
307	
G09-111	
G10-112-310	
G11-113-311	

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Above the ceiling is:	
G01-201	Another Occupancy
G02-202	
G03-203	
G04-204	
105-205	
301	
302	
G01-101-301	
G02-102-302	
G03-103-303	
G04-104-304	
G08-110-308-404	
G05	
105-305	
309-405	
G06	
106	
108-306	
G07-109	
107	
307	
G09-111	
G10-112-310	
G11-113-311	
401	Outside
402	
403	
406	

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Exposed sides:

G01-201	3
301	
G01-101-301	
401	
402	
G05	
G06	
G07-109	
G09-111	
G11-113-311	

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G02-202	2
G03-203	
G04-204	
105-205	
302	
G02-102-302	
G03-103-303	
403	
G04-104-304	
G08-110-308-404	
105-305	
309-405	
106	
108-306	
406	
107	
307	
G10-112-310	

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NatHERS Annual Energy Loads - Heat: All	54.7 MJ/sqm
---	-------------

NatHERS Annual Energy Loads - Cool: All	3.5 MJ/sqm
---	------------

NatHERS star rating: All	8.4
--------------------------	-----

Type of Heating System: All	Reverse cycle space
-----------------------------	---------------------

Heating System Efficiency: All	3.5 Stars (2019 MEPS)
--------------------------------	-----------------------

Type of Cooling System: All	Refrigerative central other
-----------------------------	-----------------------------

Cooling System Efficiency: All	4 Stars (2019 MEPS)
--------------------------------	---------------------

Type of Hot Water System: All	Electric Heat Pump Band 4
-------------------------------	---------------------------

% Contribution from solar hot water system: All	0 %
---	-----

Is the hot water system shared by multiple dwellings?: All	Yes
--	-----

Clothes Line: All	Private outdoor clothesline
-------------------	-----------------------------

Clothes Dryer: All	Shared heat pump dryer
--------------------	------------------------

Solar Photovoltaic system profile**System Size (lesser of inverter and panel capacity):**

51-53 Hope Street	10.0 kW peak
-------------------	--------------

66-82 Autumn Street	15.0 kW peak
---------------------	--------------

Orientation (which way is the system facing)?:

51-53 Hope Street	North-East
-------------------	------------

66-82 Autumn Street	North-East
---------------------	------------

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Inclination (angle from horizontal):	
51-53 Hope Street	20.0 Angle (degrees)
66-82 Autumn Street	20.0 Angle (degrees)
1.2 Thermal Performance Rating - Residential	
95% ✓ Achieved	
Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	What is the average NatHERS rating?
Output	Average NATHERS Rating (Weighted)
Apartment	8.4 Stars
2.1 Greenhouse Gas Emissions	
100%	
Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?
Output	Reference Building with Reference Services (BCA only)
Apartment	131,908 kg CO2
Output	Proposed Building with Proposed Services (Actual Building)
Apartment	77,362 kg CO2
Output	% Reduction in GHG Emissions
Apartment	41 %
2.6 Electrification	
100%	
Score Contribution	This credit contributes 17.6% towards the category score.
Criteria	Is the development all-electric?
Question	Criteria Achieved?
Project	Yes
2.7 Energy consumption	
100%	
Score Contribution	This credit contributes 23.5% towards the category score.
Criteria	What is the % reduction in annual energy consumption against the benchmark?
Output	Reference Building with Reference Services (BCA only)
Apartment	1,164,092 MJ
Output	Proposed Building with Proposed Services (Actual Building)
Apartment	327,651 MJ
Output	% Reduction in total energy
Apartment	71 %
3.1 Carpark Ventilation	
100%	
Score Contribution	This credit contributes 5.9% towards the category score.
Criteria	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?
Question	Criteria Achieved ?
Project	Yes
3.4 Local planning	
100%	

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Score Contribution	This credit contributes 5.9% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) from a combination of clothes lines and efficient driers against the benchmark?
Output	Reference
Apartment	27,004 kWh
Output	Proposed
Apartment	3,781 kWh
Output	Improvement
Apartment	86 %
3.6 Internal Lighting - Apartments	100%
Score Contribution	This credit contributes 5.9% towards the category score.
Criteria	Is the maximum illumination power density (W/m2) in at least 90% of the relevant building class at least 20% lower than required by clause J7D3(1)(a) and Table J6.2a of the NCC 2022 Vol 1 (Class 2-9)?
Question	Criteria Achieved ?
Apartment	Yes
4.2 Renewable Energy Systems - Solar	100%
Score Contribution	This credit contributes 5.9% towards the category score.
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?
Output	Solar Power - Energy Generation per year
Apartment	30,296 kWh
Output	% of Building's Energy
Apartment	33 %
4.4 Renewable Energy Systems - Other	N/A ✦ Scoped Out
No other (non-solar PV) renewable energy is in use.	
This credit was scoped out	No other (non-solar PV) renewable energy is in use.

Stormwater Overall contribution 13.5%

	Minimum required 100%	100%	✔ Pass
--	-----------------------	------	--------

Which stormwater modelling software are you using?:	Melbourne Water STORM tool
1.1 Stormwater Treatment	100%
Score Contribution	This credit contributes 100% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Question	STORM score achieved
Project	103
Output	Min STORM Score
Project	100

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IEQ Overall contribution 16.5%

		Minimum required 50%	81%	✔ Pass
--	--	----------------------	-----	--------

Use the BESS Deemed to Satisfy (DtS) method for daylight to Dwellings?:		No
What approach do you want to use for daylight to Dwellings?:		Use the built in calculation tools
Room Designation:		
AP (Dual Aspect) - Liv		Living
4-Liv		
5-Liv		
AP (Dual Aspect) - Bed		Bedroom
AP (DTS) - Bed		
Quantity:		
AP (Dual Aspect) - Liv		51
4-Liv		3
5-Liv		
AP (Dual Aspect) - Bed		9
AP (DTS) - Bed		114
Auto-Pass:		
AP (Dual Aspect) - Liv		Yes
AP (Dual Aspect) - Bed		
AP (DTS) - Bed		
4-Liv		No
5-Liv		
Room Floor Area:		
AP (Dual Aspect) - Liv		-
AP (Dual Aspect) - Bed		
AP (DTS) - Bed		
4-Liv		26.0 m²
5-Liv		40.4 m²
Vertical Angle:		
AP (Dual Aspect) - Liv		-
AP (Dual Aspect) - Bed		
AP (DTS) - Bed		
4-Liv		71.3 Angle (degrees)
5-Liv		64.1 Angle (degrees)
Horizontal Angle:		
AP (Dual Aspect) - Liv		-
AP (Dual Aspect) - Bed		
AP (DTS) - Bed		
4-Liv		180 Angle (degrees)
5-Liv		169 Angle (degrees)

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Window Area:		ADVERTISED PLAN
AP (Dual Aspect) - Liv	-	
AP (Dual Aspect) - Bed	-	
AP (DTS) - Bed	-	
4-Liv	6.7 m ²	
5-Liv	6.4 m ²	
Window Orientation:		This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright
AP (Dual Aspect) - Liv	-	
AP (Dual Aspect) - Bed	-	
AP (DTS) - Bed	-	
4-Liv	South	
5-Liv	North	
Glass Type:		
AP (Dual Aspect) - Liv	-	
AP (Dual Aspect) - Bed	-	
AP (DTS) - Bed	-	
4-Liv	Green Double (VLT 0.58)	
5-Liv	Green Double (VLT 0.58)	
Daylight Criteria Achieved?: All		
1.1 Daylight Access - Living Areas		100%
Score Contribution	This credit contributes 27.3% towards the category score.	
Criteria	What % of living areas achieve a daylight factor greater than 1%	
Output	Calculated percentage	
Apartment	100 %	
1.2 Daylight Access - Bedrooms		100%
Score Contribution	This credit contributes 27.3% towards the category score.	
Criteria	What % of bedrooms achieve a daylight factor greater than 0.5%	
Output	Calculated percentage	
Apartment	100 %	
1.3 Winter Sunlight		0%
Score Contribution	This credit contributes 9.1% towards the category score.	
Criteria	Do 70% of dwellings receive at least 3 hours of direct sunlight in all Living areas between 9am and 3pm in mid-winter?	
Question	Criteria Achieved ?	
Apartment	No	
1.5 Daylight Access - Minimal Internal Bedrooms		100%
Score Contribution	This credit contributes 9.1% towards the category score.	
Criteria	Do at least 90% of dwellings have an external window in all bedrooms?	
Question	Criteria Achieved ?	
Apartment	Yes	
2.1 Effective Natural Ventilation		66%

Score Contribution	This credit contributes 27.3% towards the category score.
Criteria	What % of dwellings are effectively naturally ventilated?
Question	Percentage Achieved?
Apartment	62 %

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Transport Overall contribution 9.0%

		22%
1.1 Bicycle Parking - Residential		0%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	How many secure and undercover bicycle spaces are there for residents?	
Question	Bicycle Spaces Provided ?	
Apartment	14	
Output	Min Bicycle Spaces Required	
Apartment	57	
1.2 Bicycle Parking - Residential Visitor		0%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	How many secure bicycle spaces are there for visitors?	
Question	Visitor Bicycle Spaces Provided ?	
Apartment	6	
Output	Min Visitor Bicycle Spaces Required	
Apartment	12	
1.3 Bicycle Parking - Convenience Residential		0% <input type="checkbox"/> Disabled
Credit 1.1 must be achieved first.		
This credit is disabled	Credit 1.1 must be achieved first.	
2.1 Electric Vehicle Infrastructure		100%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	Yes	
2.2 Car Share Scheme		0%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Has a formal car sharing scheme been integrated into the development?	
Question	Criteria Achieved ?	
Project	No	
2.3 Motorbikes / Mopeds		0%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?	
Question	Criteria Achieved ?	
Project	No	

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Waste Overall contribution 5.5%

		66%
--	--	-----

1.1 - Construction Waste - Building Re-Use		0%
--	--	----

Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No

2.1 - Operational Waste - Food & Garden Waste		100%
---	--	------

Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	Yes

2.2 - Operational Waste - Convenience of Recycling		100%
--	--	------

Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?
Question	Criteria Achieved ?
Project	Yes

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Urban Ecology Overall contribution 5.5%

		66%
1.1 Communal Spaces		100%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Is there at least the following amount of common space measured in square meters : * 1m² for each of the first 50 occupants * Additional 0.5m² for each occupant between 51 and 250 * Additional 0.25m² for each occupant above 251?	
Question	Common space provided	
Apartment	93.0 m²	
Output	Minimum Common Space Required	
Apartment	93 m²	
2.1 Vegetation		100%
Score Contribution	This credit contributes 44.4% towards the category score.	
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?	
Question	Percentage Achieved ?	
Project	37 %	
2.2 Green Roofs		0%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Does the development incorporate a green roof?	
Question	Criteria Achieved ?	
Project	No	
2.3 Green Walls and Facades		0%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Does the development incorporate a green wall or green façade?	
Question	Criteria Achieved ?	
Project	No	
2.4 Private Open Space - Balcony / Courtyard Ecology		100%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Is there a tap and floor waste on every balcony and courtyard (including any roof terraces)?	
Question	Criteria Achieved ?	
Apartment	Yes	
3.1 Food Production - Residential		0%

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Score Contribution	This credit contributes 11.1% towards the category score.
Criteria	What area of space per resident is dedicated to food production?
Question	Food Production Area
Apartment	0.0 m²
Output	Min Food Production Area
Apartment	35 m²

Innovation Overall contribution 9.0%

		20%
--	--	-----

Innovations		
Description:		
Low VOC and formaldehyde materials	> All paints, adhesives, sealants and carpets (if installed) applied on-site as part of the proposed works shall meet the maximum Total Volatile Organic Compound (TVOC) limits outlined in Paints, Adhesive, Sealants and Carpets. > All engineered wood products including particleboard, plywood, Medium Density Fibreboard (MDF), Laminated Veneer Lumber (LVL), High-Pressure Laminate (HPL), Compact Laminate and decorative overlaid wood panels used as part of the proposed works shall meet the Formaldehyde emission limits outlined in Engineered Wood Products.	
<div>ADVERTISED PLAN</div>		
Exceeding Minimum NatHERs rating	The current average rating of the development is exceeding the minimum 7-star average rating.	
Points Targeted:		
Low VOC and formaldehyde materials	1	
Exceeding Minimum NatHERs rating	1	
1.1 Innovation		20%
Score Contribution		
This credit contributes 100% towards the category score.		
Criteria		
What percentage of the Innovation points have been claimed (10 points maximum)?		

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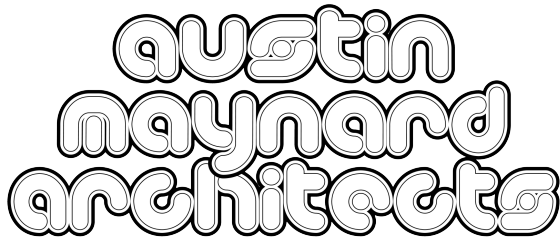
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Appendix E Cross Ventilation Flow Markup

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Directors Andrew Maynard & Mark Austin
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Email: hello@maynardarchitects.com
Phone: 0497 020 635
Address: Level 1, 458 Swanton Street, Carlton VIC 3053
ABN: 1911 74 80 636
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A 30/1/2025 DTP 801 haw RD

- General Notes:
- These drawings are to be read in conjunction with the Urban Context Report prepared by Austin Maynard Architects, and the following consultant team reports;
 - Tract Planning Report
ADP Consulting Engineering
Sustainability Management Plan
Plume Studio
Landscape Architect Design
Traffic Group
Traffic Engineering Assessment
Green Travel Plan
Waste Management Plan
Swanson Surveying
Title Re-establishment & Feature Survey
 - Tree Logic
Arborist Report
 - All POS areas are provided with a garden tap, stormwater drainage & a weatherproof electricity outlet
 - All landscaping areas are to be irrigated. The irrigation system is to be supplied with water collected onsite.
 - All Roof Areas, excluding balconies, are to be directed into the Rain Water tanks located within the basement. Refer to STORM Assessment.
 - Rainwater tanks to be used for irrigation and WC flushing. Refer SMR
 - Refer to the SMP for WELS ratings of plumbing fixtures.
 - Refer to the SMP for Nathers ratings of the proposed apartments and note the commitment to exceed the minimum requirements of the NCC.
 - Refer to the SMP for Wattage per m2 requirements for the apartment areas.
 - All external lights are to be on motion sensors, including those within the basement.
 - Refer to the SMP for details of cross ventilation compliance under BESS.
 - All parking bays to have access to EV charging via a food management device.
- Plan Key:
F = Fridge
P = Pantry
S = Store
L = Laundry
HW = Habitable Room Window

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Hope & Autumn

project name

Wadawurrung People

traditional owners

51-53 Hope & 66-76 Autumn
Streets, Geelong West 3218

address

Up Property

client

Plan: Level Ground

drawing

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A 101 A

Hope Street

Autumn Street

Section YY
A 304

Concrete Car Park

Gravel Car Park
82 Autumn Street
Section ZZ
A 304

Section YY
A 304

Concrete Car Park

Section ZZ
A 304

Gravel Car Park

Section EE
A 302

Gravel Car Park

Section AA
A 301

Gravel Car Park

Section CC
A 302

Gravel Car Park

Section DD
A 302

Gravel Car Park

Section EE
A 302

Gravel Car Park

Section AA
A 301

Gravel Car Park

Section CC
A 302

Gravel Car Park

Section DD
A 302

Gravel Car Park

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Traffic Planning Report
ADP Consulting Engineering
Sustainability Management Plan
Plume Studio
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Traffic Group
Traffic Engineering Assessment
Green Travel Plan
Waste Management Plan
Swanson Surveying
Title Re-establishment & Feature Survey

Tree Logic
Arborist Report

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Plan: Level One

drawing

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Hope Street

Autumn Street

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Plan: Level Two

drawing

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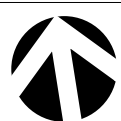
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A 103 A

Hope Street

Autumn Street

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Plan: Level Three

drawing

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print date	issue date	scale @ A1

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austin maynard project#		



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 ADP Consulting Engineering
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 Traffic Engineering Assessment
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 Tree Logic
 Arborist Report
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 collected onsite.
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 6. Refer to the SMP for WELS ratings of plumbing
 fixtures.
 7. Refer to the SMP for Nuthers ratings of the
 proposed apartments and note the commitment
 to exceed the minimum requirements of the
 NCC.
 8. Refer to the SMP for Wattage per m2
 requirements for the apartment areas.
 9. All external lights are to be on motion sensors,
 including those within the basement.
 10. Refer to the SMP for details of cross
 ventilation complies under BESS.
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 charging via a load management device.
 Plan Key:
 F = Fridge
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 S = Store
 L = Laundry
 HW = Habitable Room Window

Section XX
 A 303

Section YY
 A 304

A 304
 Section ZZ

ADVERTISED
 PLAN

Hope Street

Autumn Street

Section EE
 A 302

Section AA
 A 301
 Section BB
 A 301

Section CC
 A 302
 Section DD
 A 302

Section EE
 A 302

Section AA
 A 301
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 A 301

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 A 304

A 304
 Section ZZ

Appendix F Paints, Adhesives, Sealants and Carpets

F.1 Paints, Adhesives, Sealants and Carpets

The following TVOC limits are applicable to all internal applications of all types of paints, adhesives or sealants applied on-site, including both exposed and concealed applications. If exterior grade products are used in an internal application, then these must also meet the requirements.

The following items are excluded:

- > Glazing film, tapes, and plumbing pipe cements.
- > Products used in car park.
- > Paints, adhesives and sealants used off-site, for example applied to furniture items in a manufacturing site and later installed in the fitout; and
- > Adhesives and mastics used for temporary formwork and other temporary installations.

Table 11 Items excluded

Product Type	Maximum TVOC Content (g/litre of ready to use product)
General purpose adhesive and sealants	50
Interior wall and ceiling paints, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealants, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100
Ultra Low VOC paints	5

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Further, carpets used in the project must either be:

- > Certified under a recognised Product Certification Scheme (listed on the GBCA website) or other recognised standards; or
- > Compliant with the Total VOC (TVOC) limits specified in the table below.

Table 12 Carpets requirements

Product Type	Maximum TVOC Content (g/litre of ready to use product)
ASTM D5116 – Total VOC limit	0.5mg/m ² per hour
ASTM D5116 – 4-PC (4 – Phenyl cyclohexene)	0.05mg/m ² per hour
ISO 16000 / EN 13419 – TVOC at three days	0.5mg/m ² per hour
ISO 10580 / ISO/TC 219 (Document N238) – TVOC at 24 hours	0.5mg/m ² per hour

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Appendix G Engineered Wood Products

G.1 Engineered Wood

The term "engineered wood products" includes composite wood products and includes raw/ unfinished as well as finished products. Items not covered by these limits include products used in exterior applications, formwork, internal car park applications, re-used products, and raw timber. All emission levels must be established by a NATA or ISO/IEC 17025 registered laboratory as per the testing methodologies in the table above.

Table 13 Engineered wood products

Test Protocol	Emission Limit / Unit of Measurement
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1.0 mg/L
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5 mg/L
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.0 mg/L
AS/NZS 4357.4 – Laminated Veneer Lumber (LVL)	≤1.0 mg/L
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	≤1.0 mg/L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	≤1.0 mg/L
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	≤1.0 mg/L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1 mg/ m ² hr
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1mg/m ² hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m ² hr (at 3 days)
ASTM D6007	≤0.12mg/m ^{3**}
ASTM E1333	≤0.12mg/m ^{3***}
EN 717-1 (also known as DIN EN 717-1)	≤0.12 mg/m ³
EN 717-2 (also known as DIN EN 717-2)	≤3.5 mg/m ² hr

**The test report must confirm that the conditions of this table comply for the particular wood product type, the final results must be presented in EN 717-1 equivalent (as presented in the table) using the correlation ratio of 0.98.

*** The final results must be presented in EN 717-1 equivalent (as presented in the table), using the correlation ratio of 0.98.

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Appendix H Section J Assessment

Consultant Advice Notice

From	Radhika Gupta	Advice No.	CAN No-04
Project	Hope and Autumn	Project No.	MEL4293
Date	11 February 2025	Pages	1/4
Subject	NCC2022 Section J Preliminary Advice	Revision:	02

Introduction

The following advice note has been prepared to outline the NCC 2022 Section J Part J4 and J5 compliance requirements for Bendigo Stadium. This preliminary review has been based on the architectural drawings by Austin Maynard Architects dated 30/01/2025.

General Project Information

Table 1 General project information

NCC Climate Zone	6
Applicable NCC version	NCC 2022
Assessment pathway	Deemed-to-Satisfy

Section J Part J4 Building Fabric Requirements

Opaque Components

Table 2 lists the thermal performance parameters that must be achieved for the opaque components forming part of the building's thermal envelope.

Table 2 Opaque components' performance requirements

Component	R_T (m ² .K/W)
Roofs/ceilings	3.2
External Walls	1.4
Floors	2.0

*Total R-values stated in Table 2 must also take into consideration thermal bridging (generally in accordance with AS/NZ4859.2).

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Translucent Components

Table 3 lists the thermal performance parameters that must be achieved for the translucent components forming part of the building's thermal envelope.

Table 3 Translucent components' performance requirements

Component	U_w (W/m ² .K)	SHGC _w	VLT _w (%)
Windows	<4.5	0.40	-

Section J Part J5 Building Sealing

Windows and doors

- > All edges of external windows should be fitted with a seal to restrict air infiltration.
- > External swing doors (except fire and smoke doors) must be fitted with a draft protection device on the bottom edge and seals to restrict air infiltration on the other three edges. For all other edges of openable doors this can be a foam or rubber compression strip, fibrous seal, or the like.
- > Entrance doors that do not lead into an airlock must be self-closing.

Exhaust fans

- > All miscellaneous exhaust fans must be fitted with a self-closing damper or the like. For this development compliance should be covered by the mechanical engineer's design and signoff.

Construction of roofs, walls, and floors

Roofs, ceilings, walls, floors, and any opening such as a window frame, door frame roof light frame or the like located on the external fabric must be constructed to minimise air leakage. Therefore, they must be either:

- > Enclosed by internal lining systems that are close fitting at ceiling, wall, and floor junctions; or
- Sealed by caulking, skirting, architraves, cornices, or the like.

Section J Part J4 & J5 Report

This advice note is not a statement of compliance and cannot be used to obtain a Building Permit. Rather, it provides relevant stakeholders information relating to the performance targets that must be achieved by the building thermal envelope to ensure compliance with Section J Part J4-J5 can be met.

A Section J Part J4-J5 Report will be developed based on 'For Building Permit' or 'For Construction' documentation which as a minimum must include:

- > Site Plan & Floor Plans
- > Elevations
- > Sections
- > Wall Type Schedule and Wall Set-out Plan
- > Windows and Doors Schedule

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Appendix A- Section J Wall-Glazing Calculator for Building Fabric compliance

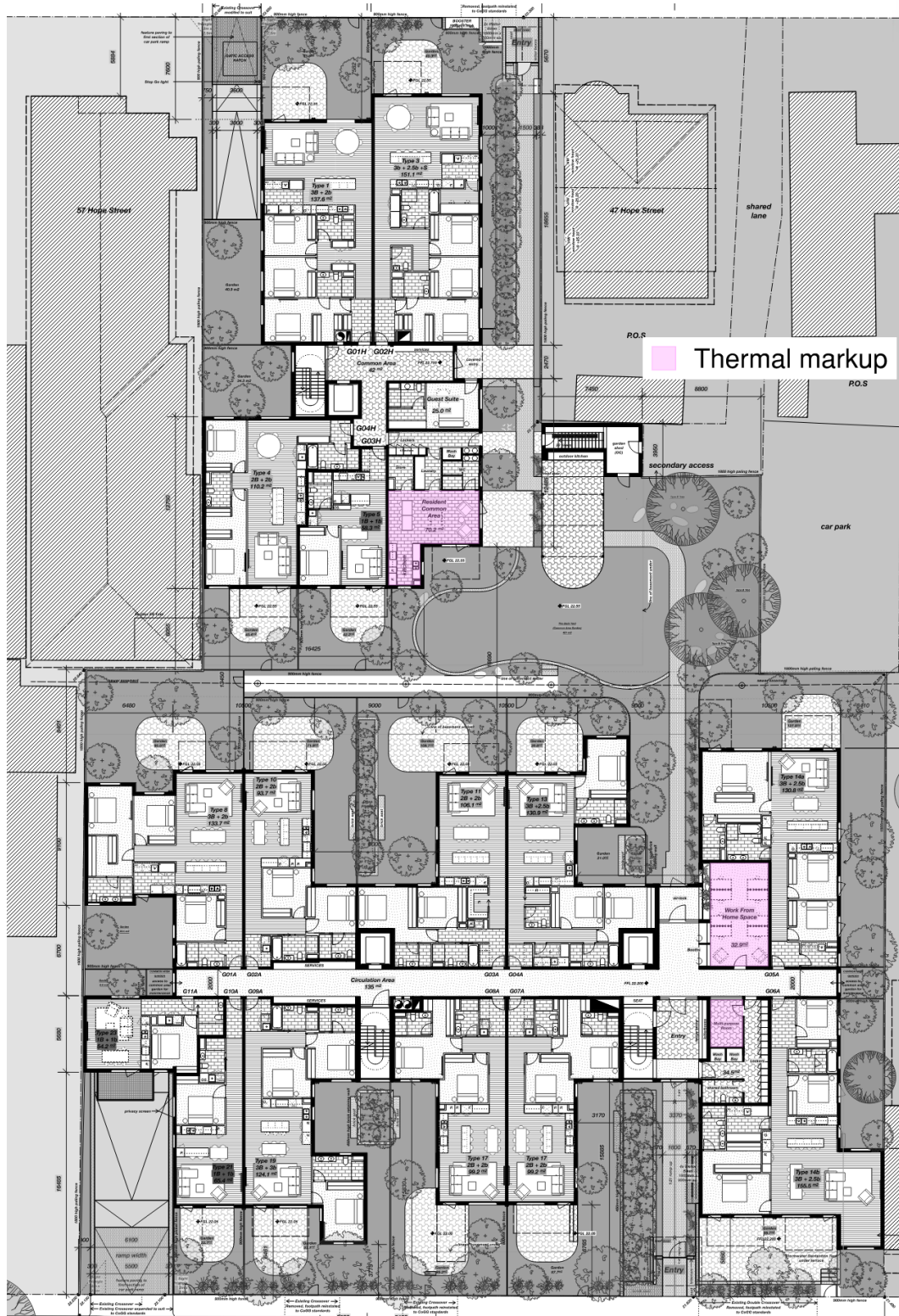
NCC 2019 Wall-Glazing Calculator v3.0 (Open-source)											
Wall and glazing energy efficiency in Class 2-9 buildings - Method 2 of Specification J1.5a, NCC 2019											
Building name and description Hope and Autumn					Classification Other			Climate Zone 6			
Calculated Area-Weighted U-Value 0.93					Calculated Representative Air-Conditioning Energy Value 1.6						
Allowable Area-Weighted U-Value 2.00					Allowable Representative Air-Conditioning Energy Value 1.6						
Building total U-Value allowance met 47%					Building total SHGC allowance met 99%						
Check Values Visible		Wall Element Requirements Met			Display Glazing Element Requirements -						
Use of this calculator does not guarantee compliance with the NCC. The disclaimer and a version update check are available at the bottom of the page.											
Element Description					U-Value		SHGC and Shading				
ID	Description (optional)	Element Type	Facing Sector	Area (m ²)	U-Value	U-Value Element share of allowance used	SHGC	Glazing Height (m)	Shading Height (m)	Shading Projection (m)	SHGC Element share of allowance used
1	East Walls	Wall	East	22.4	0.70	9% of building total					Not counted
2	North Walls	Wall	North	0.00	0.70	0% of building total					Not counted
3	South Walls	Wall	South	24.96	0.70	11% of building total					Not counted
4	West Walls	Wall	West	5.12	0.70	2% of building total					Not counted
5	Internal Walls	Wall	Internal	115.20	0.70	10% of building total					Not counted
7	East Glazing	Glazing	East	4.20	4.50	6% of building total	0.4	2.1	0		0 0% of building total
9	East Kitchen Glazing	Glazing	East	1.00	4.50	3% of building total	0.4	1	0		0 0% of building total
10	South Glazing	Glazing	South	2.00	4.50	5% of building total	0.4	1	3.2	2.4	0% of building total
11	South Glazing	Glazing	South	1.00	4.50	3% of building total	0.4	1	0		0 0% of building total
12	West Glazing	Glazing	West	2.40	4.50	7% of building total	0.4	1.5	3.2	0.85	100% of building total
<p>Disclaimer:</p> <p>This calculator has been developed to assist in developing a better understanding of the glazing energy efficiency parameters of NCC 2019. While the author believes that the calculator, if used correctly, is likely to produce accurate results, it is provided "as is" and without any representation or warranty of any kind, including that it is fit for any purpose or of merchantable quality, or functions as intended or at all. Your use of this calculator is entirely at your own risk and the author accepts no liability of any kind.</p> <p>Based on the Wall-Glazing Calculator v3.0 made by Alex Zeller (available at this link)</p>											

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Appendix B- Thermal Markup

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