

Sustainability Management Plan

27 Princes Highway,
Dandenong VIC

28/07/2026



Framer
Consulting
Services Pty Ltd

(03) 8691 6928
admin@fraterconsultingservices.com.au
fraterconsultingservices.com.au





Sustainability Management Plan (SMP)

Proposed Apartment Development

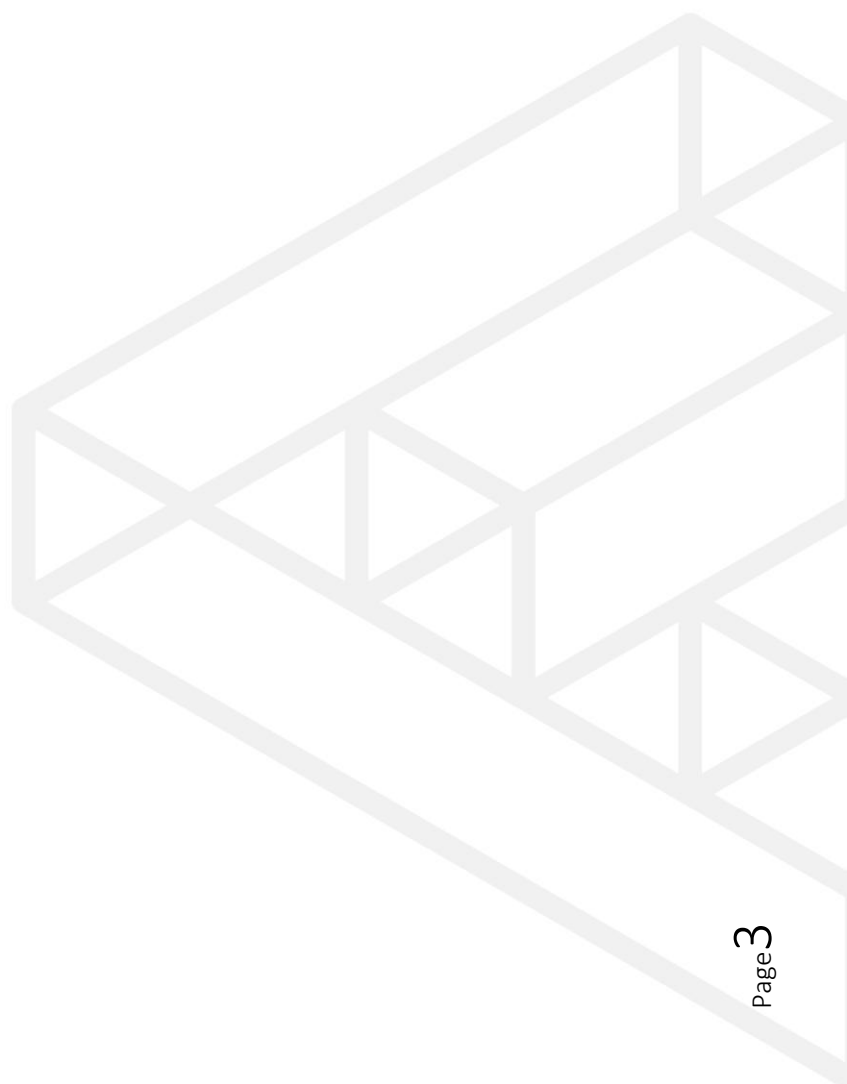
Table of Contents

Initiatives to be Marked on Drawings.....	4
Introduction.....	5
Site Description.....	6
Proposed Development	6
Energy Efficiency	7
Water Efficiency & Stormwater Management.....	9
Indoor Environment Quality.....	11
Construction, Building & Waste management	14
Transport	15
Building Materials	16
Urban Ecology	17
Implementation & Monitoring	18
Appendix A – WSUD Report / Blue Factor Assessment	19
Appendix B – WSUD Maintenance & Installation.....	27
Appendix C – VOC & Formaldehyde Emission Limits	30
Appendix D– Green Travel Plan Consideration.....	32
Appendix E – BESS Assessment & Daylight Input	37



DOCUMENT VERSION

Version	Date	Changelog	Author	Review
Draft	15/08/23	Draft issued for Client Review (FCS 53960)	PS	DG
0	03/10/23	Issued for Client Review, updated as per latest drawings (FCS 53960)	PS	DG
1	03/06/24	Updated as per the latest drawing set (FCS 58740)	KT	-
2	28/07/26	Updated as per redesign (FCS 70759)	PS	JC





INITIATIVES TO BE MARKED ON DRAWINGS

Water & Stormwater Management

- ☐ Mark-up showing roof catchment area to be diverted to the rainwater tank for the development– If required, the use of a charged pipe system will be explicitly acknowledged on the drawings and charged pipes will not be running underneath the building footprint.
- ☐ Filtering system to be installed for the tanks due to catchment from trafficable areas (services platform).
- ☐ Location and size of each rainwater tank proposed
- ☐ Note showing connection to the toilets.
- ☐ Potable (mains) water consumption from fire testing will be **reduced by at least 80%** by collecting and recycling.
- ☐ Note showing use of native or drought-tolerant species for landscaped area. Watering will not be required after an initial period when plants are getting established. If irrigation is required, it will be connected to rainwater tanks.
- ☐ Note showing WELS rating for water fittings/fixtures (refer to report) – fixtures (e.g. dishwasher) provided as part of base building work have to be chosen within one WELS star of best available at the time of purchase.

Energy Efficiency

- ☐ Note showing commitment to exceeding section J energy efficiency requirement of NCC 2019
- ☐ Commitment to 6.5 Star average energy rating for the development (on planning and construction drawings)
- ☐ Note showing commitment the maximum illumination power density (W/m^2) of the dwellings will be reduced by 20% as compared to NCC 2019 requirements.
- ☐ Note showing the maximum illumination power density (W/m^2) of the shop meet the NCC 2019 requirements
- ☐ Lighting sensors for external lighting (motion detectors, timers etc.)
- ☐ 5kW Solar PV system on the roof of the development
- ☐ CO sensors for car park ventilation

Indoor Environment Quality

- ☐ Glazing in apartments to have minimum VLT of 60%
- ☐ Operable windows to allow cross ventilation

Transport

- ☐ Total of 29 bicycle spaces provided in the development

Waste

- ☐ Four-bin system including rubbish, recycling, organic/garden waste, and glass



INTRODUCTION

Frater Consulting Services has been engaged to undertake a Sustainability Management Plan for the proposed apartment development located at 27 Princes Highway, Dandenong. This has been prepared to address the Greater Dandenong City Council's sustainability requirements Planning Policy Clause 15.01-2L *Environmentally Sustainable Development*.

Within Clause 15.01-2L, the City of Greater Dandenong has identified the following key categories to be addressed:

- Energy Performance;
- Water Resources;
- Stormwater Management;
- Indoor Environment Quality;
- Construction, Building & Waste Management;
- Building Materials;
- Transport; and
- Urban Ecology.

The site has been assessed using the BESS tool. BESS was developed by association of councils led by Merri-bek City Council. This tool assesses the energy and water efficiency, thermal comfort and overall environmental sustainability performance of new buildings or alterations. It was created to demonstrate how new development can meet sustainability requirements as part of a planning permit application for the participating council.

Each target area within the BESS tool generally receives a score of between 1% and 100%. A minimum score of 50% is required for the energy, water, stormwater and IEQ areas. An overall score of 50% represents 'Best Practice' while a score over 70% represent 'Excellence'. The result of the BESS assessment is included as Appendix F.

The BlueFactor tool, which addresses stormwater quality considerations, has been used for development to ensure that stormwater management best-practice requirements are met. The result of the BlueFactor assessment is included as Appendix A.





SITE DESCRIPTION

The proposed site is located at 27 Princes Highway, Dandenong. The 734m² site is currently vacant which is proposed to be demolished prior to the construction of the development. It is located approximately 31 km southeast of the Melbourne CBD.

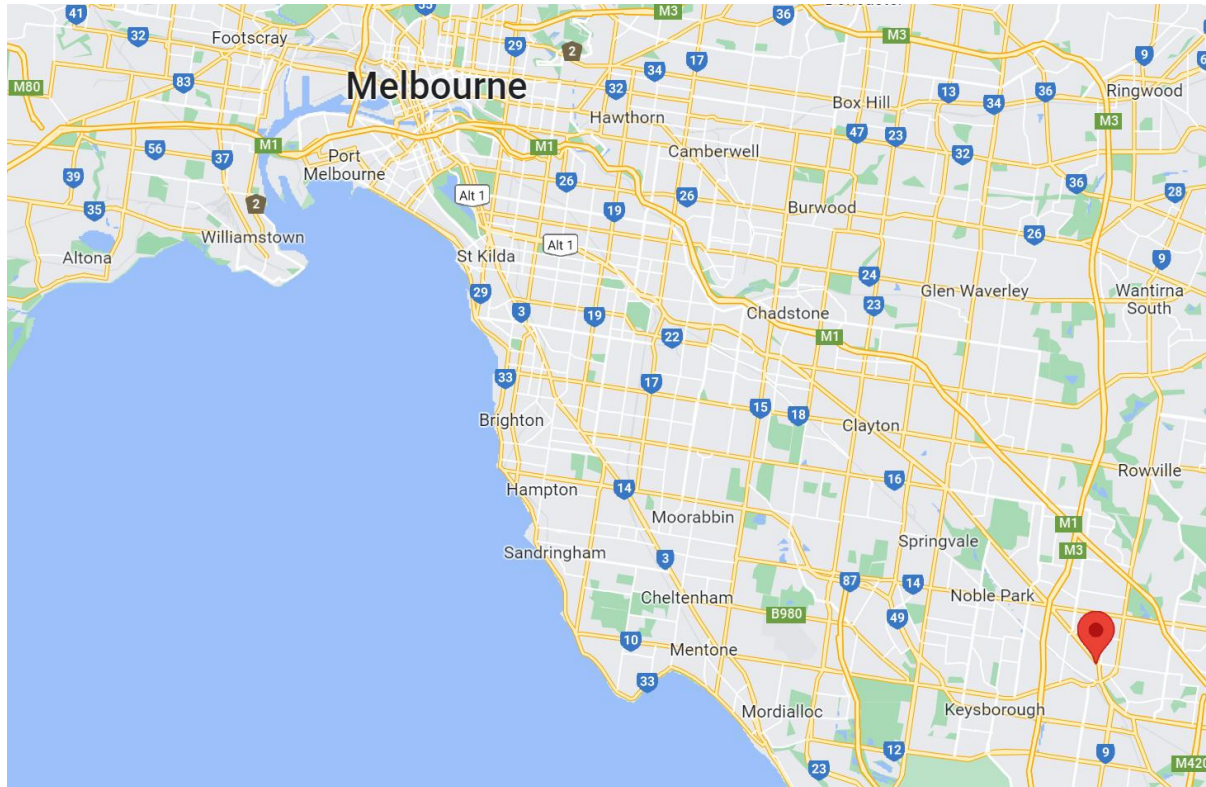


Figure 1: Location of the proposed development in Dandenong with relation to Melbourne CBD
(Source: Google Maps)

PROPOSED DEVELOPMENT

The proposal consists of development of the site into a 19-storey apartment building which includes the following:

- Ground floor: storage area, mail room, bin room, bike parking, communal area, services
- Levels 1 to 3: car parking, storage area, and bike spaces
- Levels 4 to 18: 76 apartments (32 x 1-bedroom and 44 x 2-bedroom)

The area of the site is approximately 734².



ENERGY EFFICIENCY

Energy and its key elements should be integrated into the design of the proposed development. These elements contribute to reducing greenhouse gas emissions by utilising energy-efficient appliances, energy conservation measures and renewable energy.

Thermal Performance

Energy ratings will be completed at the building approval stage. A commitment is made that all apartments will meet the energy efficiency requirements of a minimum 6.5-Star average energy rating, with no individual apartment scoring less than 5.0-Stars (10% improvement above BCA requirements). This will be achieved using appropriate insulation levels in all external walls, roof, and floors, as well as the use of thermally efficient glazing windows throughout habitable rooms. For the purpose of BESS assessment, 6.5-star average results have been assumed with cooling energy lower than 30 MJ/m².

Heating and Cooling Systems

To reduce the energy consumption heating and cooling will be provided by energy efficient air conditioners chosen **with 3-Star rating minimum (cooling and heating) or within one star of the best available product in the range at the time of purchase whichever is greater.**

COP/EER 85% or better than the most efficient equivalent capacity unit available if no star rating is available.

Please note that a 3 Star energy rating has been entered in BESS as an average; however, the actual star rating will depend on the product range.

Hot Water Heating

Hot water will be provided with banked gas instantaneous system chosen within one star of the best available at the time of purchase (minimum of 7 Stars) or with efficiency 85% or better than most efficient equivalent capacity unit available if no star rating is available.

Lighting

Energy consumption from artificial lighting within the development will be reduced by using LED lighting. A lighting level of 4W/m² will not be exceeded in the apartments. The use of light internal colours will improve daylight penetration thus reducing the need for artificial lighting.

Lighting Sensors

Common areas will be controlled using occupancy sensor and/or daylight sensors. Ventilation in these areas will be controlled using timers and other sensors.

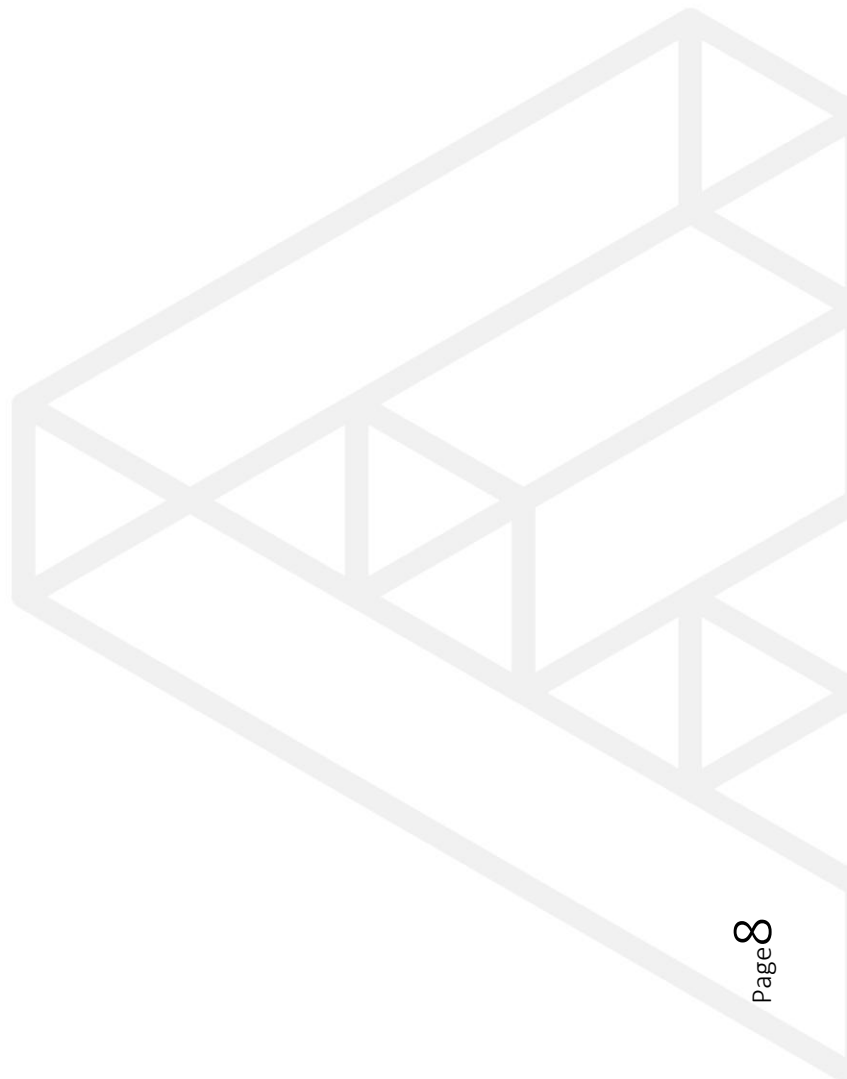


Car Park Ventilation

Car park ventilation will be designed to best practice energy efficiency with the exhaust fans installed with CO sensors which will only operate when required.

Solar PV System

A 5kW solar photovoltaic for renewable energy generation will be installed on the roof of the development. This will offset a portion of greenhouse gas emissions and energy use for the project (lighting, pumps etc.).



WATER EFFICIENCY & STORMWATER MANAGEMENT

Water saving-use and reuse and its key elements should be integrated into the design of the proposed development. These principles contribute to reducing the water demand in addition to promoting water reuse. Stormwater management and its key elements should be integrated into the design of the proposed development. These principles contribute to ensuring natural systems are protected and enhanced whilst promoting on-site retention and aim to reduce runoff or peak flows.

Water Efficient Fittings

The development will include efficient fittings and fixtures to reduce the volume of mains water used in the development. The following WELS star ratings will be specified;

- Toilets – 4 Star;
- Taps (bathroom and kitchen) – 6 Star;
- Showerhead – 4 Star with aeration device (6.0-7.5L/min); and
- Dishwasher – 5 Star.

Rainwater Collection & Use

Rainwater runoff from the roof area of the development will be collected and stored in rainwater tanks¹ with a total effective capacity of 15,000L.

If required, a charged pipe system or multiple tanks will be installed to collect water from the entire roof of the development.

Collection will include trafficable areas (services platform); therefore, an appropriate filtering system will be required to be installed (first flush, cartridge filter) and maintained. The filtering system will be in line with guidelines and standards for rainwater reuse from Water Quality Australia

<https://www.waterquality.gov.au/guidelines/recycled-water>.

In the case of a charged pipe system, the charged pipes will not be running underneath the building footprint (slab) and the stakeholders (builder/developer/architect) will be required to explicitly acknowledge this solution and have the capacity to install it.

Rainwater collected will be used for toilet flushing of levels 4 to 6 apartments. These initiatives will significantly reduce the stormwater impacts of the development and help achieve compliance with the Blue Factor calculator (See Appendix A).

Water Efficient Appliances

All appliances provided in the development as part of the base building work (e.g. dishwasher) will be chosen within one WELS star of the best available.

Water Efficient Landscaping

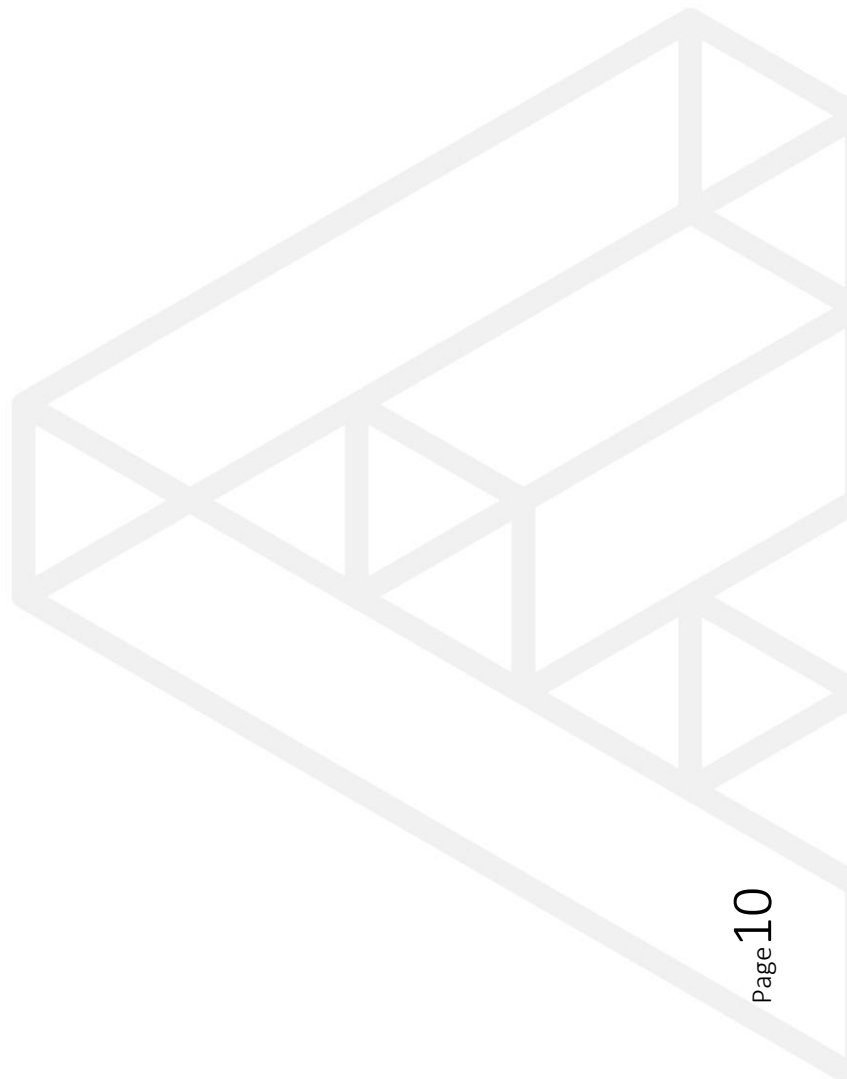
Native or drought-tolerant plants will be implemented for the landscaped areas on site. Use of water or irrigation will not be required after an initial period when plants are getting established. If irrigation is required, it will be connected to rainwater tanks.

¹ Please note that any stormwater detention volume requirement for the site will be in addition to the proposed rainwater retention and that the proposed tank will not be directly topped up by mains water.



Building System Water

Potable (mains) water consumption from fire testing and building systems (HVAC) will be **reduced by at least 80%** by collecting and recycling. This requirement will need to be clearly integrated into the service's design. Building air-conditioning will not use potable water for cooling.





INDOOR ENVIRONMENT QUALITY

Indoor Environment Quality and its key elements should be integrated into the design of the proposed development. These elements play a significant role in the health, wellbeing, and satisfaction of the development occupants. Facilitating a good (IEQ) design provides a naturally comfortable indoor environment and less dependence on building services such as, artificial lighting, mechanical ventilation and heating and cooling device.

Volatile Organic Compounds

All paints, adhesives and sealants and flooring will have low VOC content. Alternatively, products will be selected with no VOCs. Paints such as eColour, or equivalent should be considered. Please refer to Appendix D for VOC limits.

Formaldehyde Minimisation

All engineered wood products will have 'low' formaldehyde emissions, certified as E0 or better. Alternatively, products will be specified with no Formaldehyde. Products such as ecological panel – 100% post-consumer recycled wood (or similar) will be considered for use within the development. Please refer to Appendix D for formaldehyde limits.

Daylight Levels

Daylight penetration will be enhanced with the use of light internal colours to improve daylight reflection. All the living/kitchen areas, except those of Typ. 5, 6, 7, 10, 11, and 12, will have limited room depth (<8m from windows) allowing for good daylight access. All bedrooms will have access to a window so no bedroom will rely on borrowed daylight. Ceiling height throughout the habitable rooms will be minimum 2.7m and glazing provided will be **60% Visual Light Transmittance** minimum.

Daylight access has been assessed using the BESS daylight built-in calculator and BESS DTS criteria. Please refer to Appendix E for residential daylight calculations.

Ventilation

All kitchens will have a separate dedicated exhaust fan (rangehood) which will be directly exhausted out of the building.

External windows in the apartments will generally include an operable component. This will help introduce fresh air to the residents and, when weather conditions are suitable, reduce the need for mechanical cooling.

Apartment Typ. 1, 3, 4, 6, 7, 8, 10, 11, and 12 will have access to effective crossflow ventilation with the implementation of windows in opposing or adjacent walls. Window locks and door catches will be included to encourage and improve natural ventilation in the dwellings. **This accounts to approximately 71% of the dwellings and has been input on BESS IEQ 2.1.**

Please see markup below of units with cross ventilation:

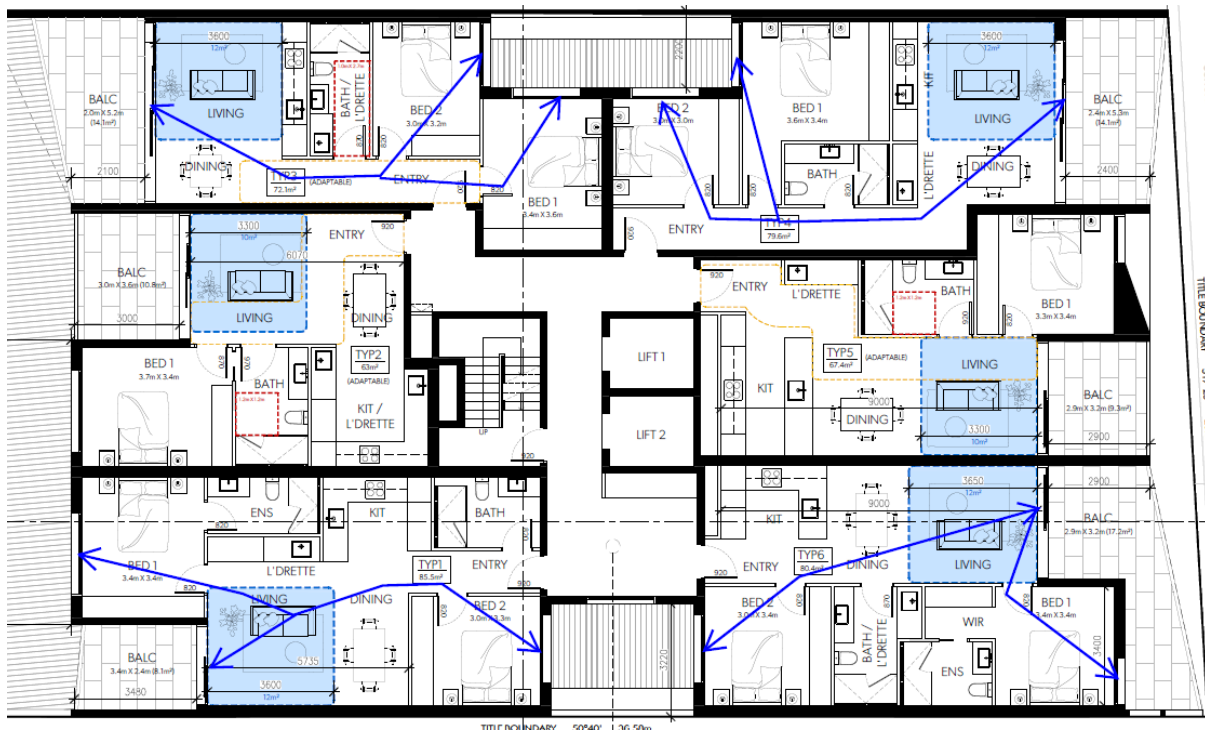


Figure 2: Sample of ventilation path for Typ. 1, 3, 4, & 6

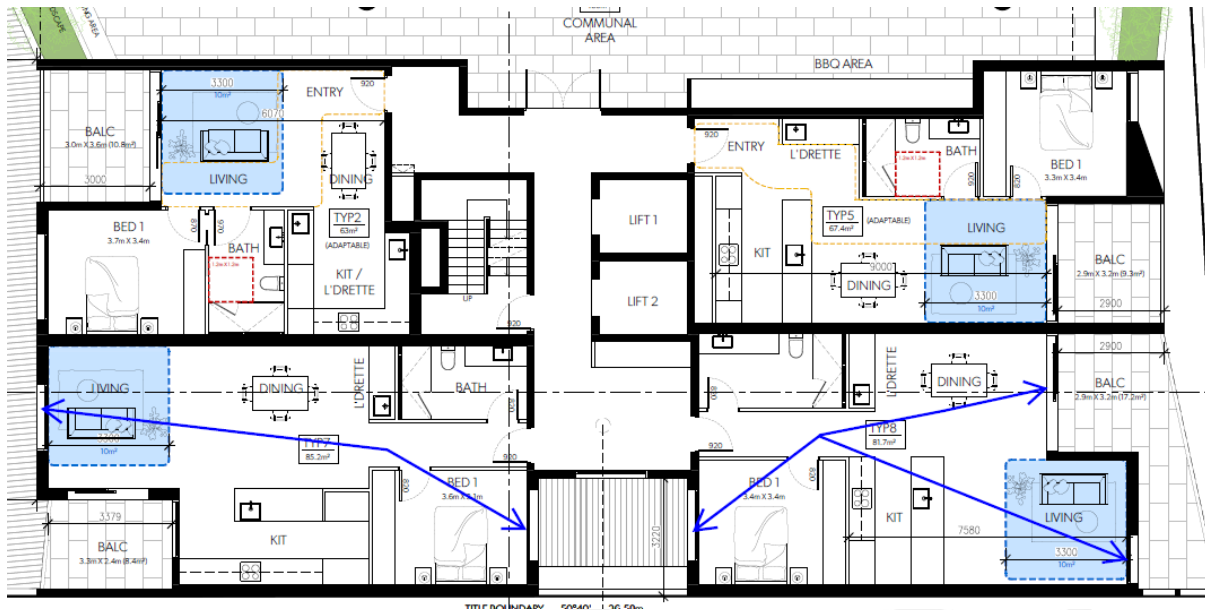


Figure 3: Sample of ventilation path for Typ. 7 & 8

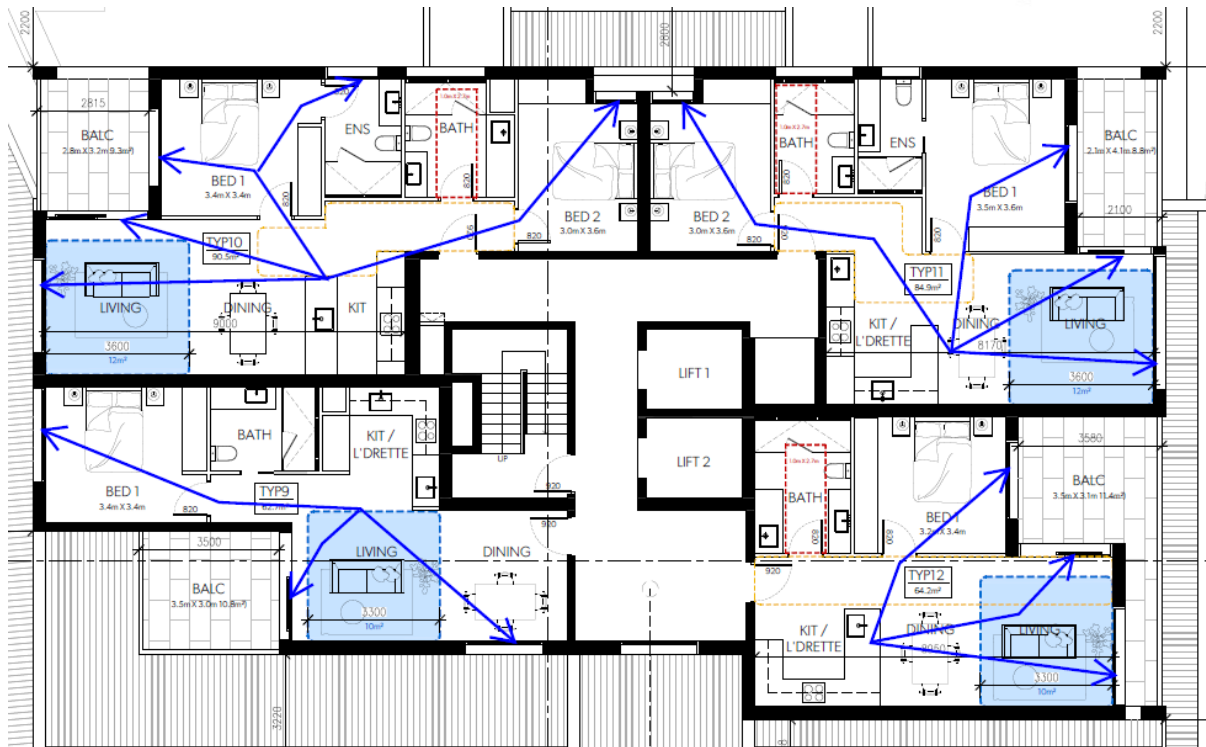


Figure 4: Sample of ventilation path for Typ. 9, 10, 11, & 12



CONSTRUCTION, BUILDING & WASTE MANAGEMENT

Building Management and its key elements should be integrated into the design of the proposed development. These principles contribute to ensuring efficient and effective on-going building performance. Waste management and its key elements should be integrated into the design of the proposed development. These principles contribute to ensuring minimal waste is transported to landfill by means of disposal, recycling, and on-site waste storage and/or collection methods.

Metering / Monitoring

Each apartment will be separately metered for potable water and energy. Effective metering ensures that residents/tenants are responsible for their consumption, and they can reduce their consumption.

Construction Waste Management

A waste management plan will be introduced to all on-site staff at a site orientation session to ensure that the waste generated on site is minimised and disposed of correctly. A minimum 80% of all construction waste generated on site will be reused or recycled.

Construction Environmental Management

The builder will identify environmental risks related to construction and include management strategies such as maintaining effective erosion and sediment control measures during construction and operation and ensure that appropriate staging of earthworks (e.g. avoid bare earthworks in high risk areas of the site during dominant rainfall period).

Operational Waste

The development will include a central waste storage room on the ground floor. Waste storage room will have facilities for general waste and recycling as well as hard rubbish. Space provision for future glass bin.

Recycle bins will be provided next to general waste bins in kitchens. Please refer to the Waste Management Plan for further details.

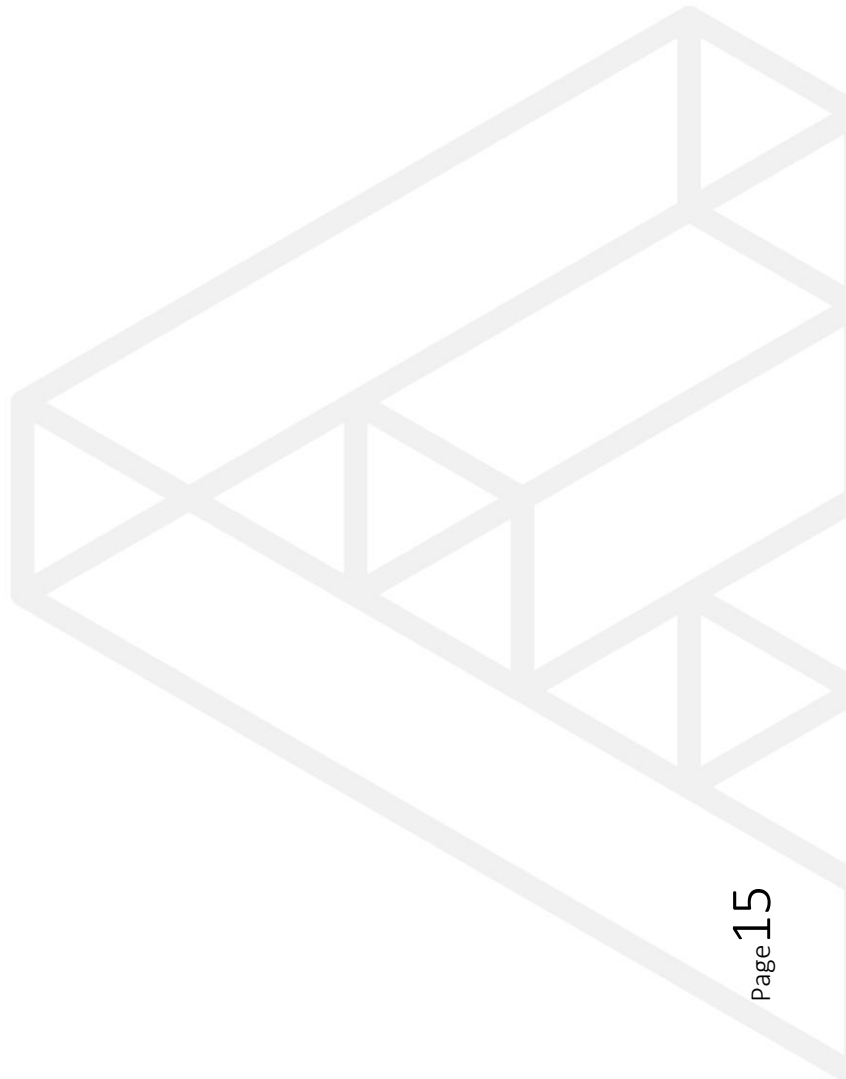


Figure 5: Examples of kitchen receptacles for general waste and recycling.

TRANSPORT

Bicycle Parking

Residents will be able to securely park their bicycle in the dedicated bicycle storage areas provided in the car park. This will be protected from weather and theft. A total of 29 bicycle spaces (24 spaces on the ground floor and 5 spaces on level 3) are provided for the development for residents and visitors.



BUILDING MATERIALS

Materials selection should be integrated into the design of the proposed development. The criteria for appropriate materials used are based on economic and environmental costs.

Timber

All timber used in the development will be Forest Stewardship Council (FSC) or Program for the Endorsement of Forest Certification (PEFC) certified, or recycled / reused.

Flooring

Wherever possible, flooring will be selected from products/materials certified under any of the following:

- Carpet Institute of Australia Limited, Environmental Certification Scheme (ECS) v1.2;
- Global GreenTag - <https://www.globalgreentag.com/>; and/or
- Good Environmental Choice (GECA).

Joinery

Where possible, joinery will be manufactured from materials/products certified under any of the following:

- Global GreenTag - <https://www.globalgreentag.com/>; and/or
- Good Environmental Choice (GECA); and/or
- The Institute for Market Transformation to Sustainability (MTS) Sustainable Materials Rating Technology standard Version 4.0 –SmaRT 4.0.

The use of Ecological Panel (or equivalent) will be investigated, which is created from 100% post-consumer recycled products.

Steel

Wherever possible, steel for the development will be sourced from a Responsible Steel Maker². Reinforcing steel for the project will be manufactured using energy-reducing processes commonly used by large manufacturers such as Bluescope or OneSteel.



² A Responsible Steel Maker must have facilities with a currently valid and certified ISO 14001 Environmental Management System (EMS) in place, and be a member of the World Steel Association's (WSA) Climate Action Program (CAP).



URBAN ECOLOGY

In highly urbanised environments, such as metropolitan Melbourne, it is important to recognise the importance of maintaining and increasing the health of our urban ecosystems to improve living conditions not only for the fauna but also ourselves. We can improve our urban ecosystem through the incorporation of vegetation through landscaping for both new and existing developments.

Re-use of Land

The development is a redevelopment of an existing established site, therefore increased density in an established urban area will reduce urban sprawl.

Landscaping

The development will include garden beds (planter boxes) on levels 1, 3 and 12. These will be planted with a mixture of native and exotic species to enhance the ecological value of the site.

Communal Spaces

Indoor and outdoor communal spaces of total of 315m² will be provided on the ground floor and level 12 of the development.

Insulant ODP

All thermal insulation used in the development will not contain any ozone-depleting substances and will not use any in its manufacturing.





IMPLEMENTATION & MONITORING

The proposed development will meet the best practice requirements of the City of Greater Dandenong through the different initiatives described in this report, such as a thermally efficient building envelope, efficient air conditioning and hot water system and sustainable materials. Appropriate implementation and monitoring of the initiatives outlined within this report will be required.

Implementation of the ESD initiatives outlined in this report requires the following processes:

- Full integration with architectural plans and specifications
- Full integration with building services design drawings and specifications
- Endorsement of the ESD Report with town planning drawings
- ESD initiatives to be included in plans and specifications for building approval



APPENDIX A – WSUD REPORT / BLUE FACTOR ASSESSMENT

New development must comply with the best practice performance targets for suspended solids, total phosphorus and total nitrogen, as set out in the Urban Stormwater Best Practice Environmental Management Guidelines, Victoria Stormwater Committee 1999. Currently, these water quality performance targets require:

- Suspended Solids - 80% retention of typical urban annual load.
- Total Nitrogen - 45% retention of typical urban annual load.
- Total Phosphorus - 45% retention of typical urban annual load.
- Litter - 70% reduction of typical urban annual load.

The BlueFactor tool has been used in the development process to ensure that stormwater management best-practice requirements are met.

Site Delineation

For the purpose of the assessment, the development has been delineated into the following surface types:

- Site area of 734m²;
- Roof areas runoff of 634.9m² which will be diverted into rainwater tank(s);
- Remainder of impervious areas of 99.1m² comprised of other impervious areas around the site.

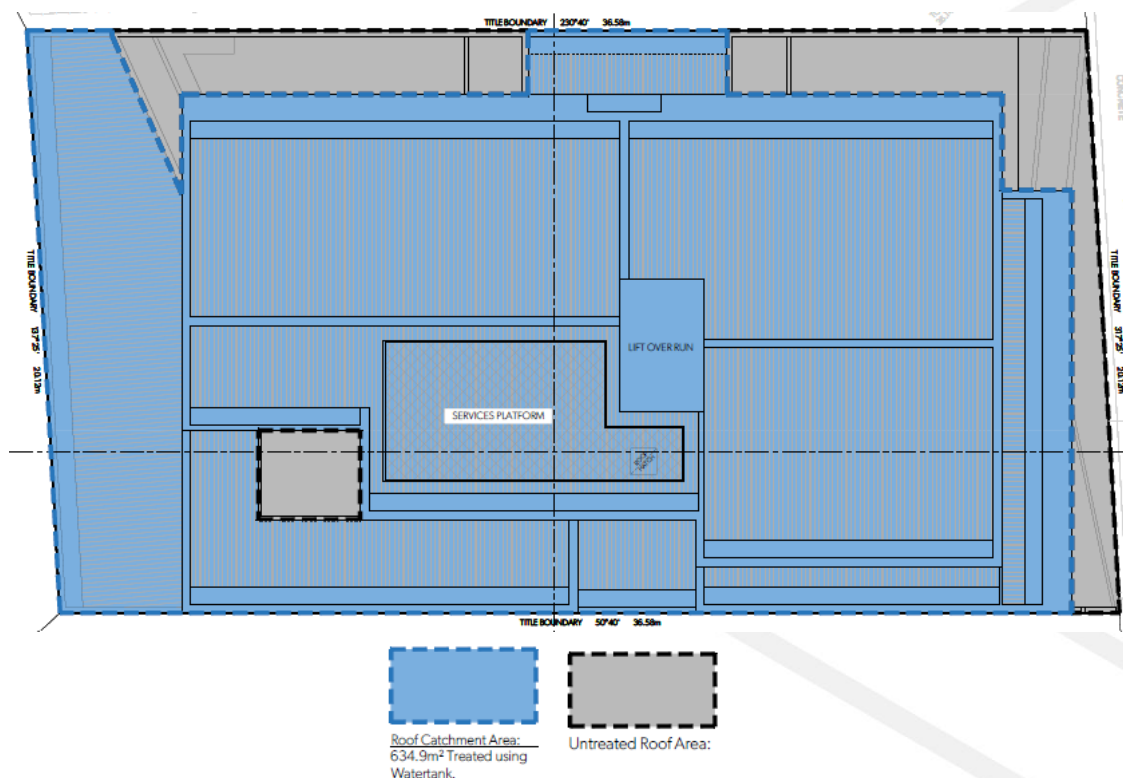


Figure 6: WSUD plan and legend by Rise Architecture



Stormwater initiatives

Rainwater Tank

(Rainwater tank for toilet flushing)

The roof catchment area (as described above) will be diverted to 15,000L rainwater tank(s). The rainwater collected will be used for toilet flushing from ground floor to level 6.

If required, a charged pipe system or multiple tanks will be installed to collect water from part of the roof of the development.

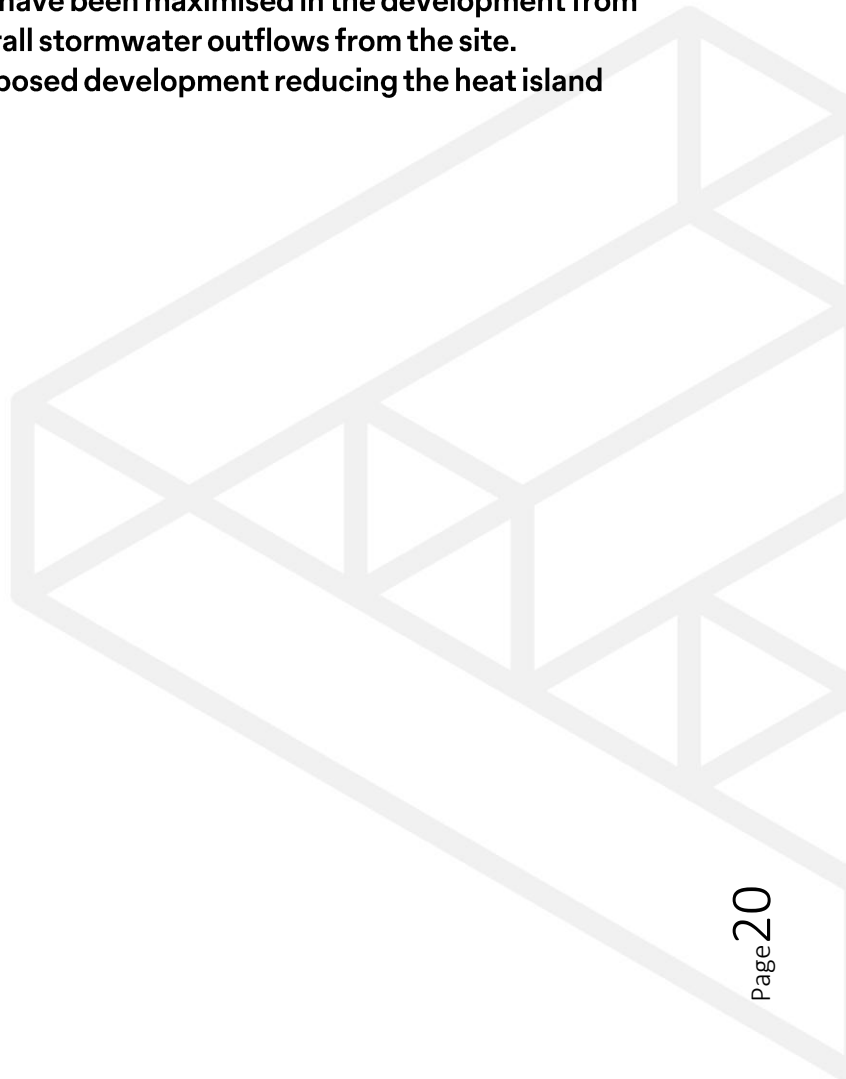
Collection will include trafficable areas (services platform); therefore, an appropriate filtering system will be required to be installed (first flush, cartridge filter) and maintained. The filtering system will be in line with guidelines and standards for rainwater reuse from Water Quality Australia

<https://www.waterquality.gov.au/guidelines/recycled-water>.

In the case of a charged pipe system, the charged pipes will not be running underneath the slab, and the stakeholders (builder/developer/architect) will be required to explicitly acknowledge this solution and have the capacity to install it.

The remainder of impervious areas will directly be released at the legal point of discharge on site.

It should be noted that permeable areas have been maximised in the development from planter boxes which will reduce the overall stormwater outflows from the site. Vegetated areas are provided in the proposed development reducing the heat island effect and improving the local habitat.

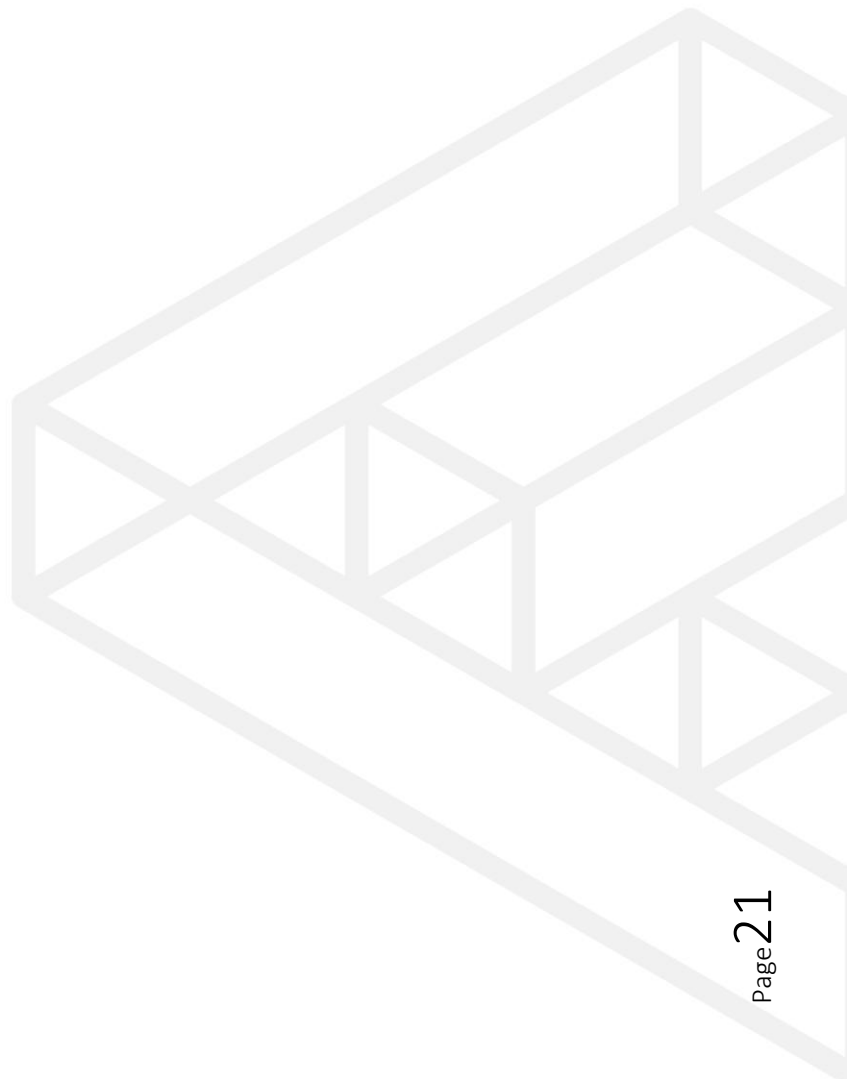




Stormwater Results

The initiatives and areas described above have been applied to the Blue Factor calculator, and the proposed development has achieved a score of 117%.

The previous STORM calculator required compliance with Total Nitrogen (TN) only. Blue Factor will continue to base the final score on TN. The Blue Factor results can be found on the following page.





Project # C28C4933
27 Princes Highway, Dandenong
Philip Sioson - philip@fraterconsultingservices.com.au
27 Princes Hwy Service Rd, Dandenong VIC 3175, Australia
24 July 2026 11:41 a.m.



27 Princes Highway, Dandenong

Nitrogen reduction target has been met, and a small low-risk project is deemed to comply. Higher risk projects need to meet all targets.



Project details

Name	27 Princes Highway, Dandenong
Project ID	C28C4933
Street address	27 Princes Hwy Service Rd, Dandenong VIC 3175, Australia
Municipality	Greater Dandenong
Site area	734 m ²
Planning Number	

Results

Item	Result	Target
Total suspended solids (%)	67%	>80%
Total phosphorus (%)	61%	>45%
Total nitrogen (%)	52%	>45%
Total gross pollutants (%)	85%	>70%
Mean annual runoff volume harvested or evapotranspired (%)	49%	>27%
Mean annual runoff volume infiltrated or filtered (%)	0%	>9%

For small low-risk sites, Total Nitrogen has been used as a proxy for other pollutants indicating compliance has been adequately met for many years. This has meant that if the Blue Factor score meets 100% based on Nitrogen, the Responsible Authority has the discretion to accept stormwater management design responses that do not meet all the individual pollutant load reduction targets on small low-risk sites.

Larger, high-risk projects, with roads, car parks or activities that may yield higher than typical pollutant loads, must meet all water quality targets fully. All projects should manage flow volume reductions through harvesting and evapotranspiration as well as infiltration to a level that is reasonably practicable.

Additional considerations

Flow and other pollutant load reductions should also be considered. The EPA Urban stormwater management guidelines (EPA - Publication [1739.1](#)) are referenced in the VPPs as a policy document and support compliance with the General Environmental Duty.

You can use the guidelines to help minimise risks from urban stormwater so far as reasonably practicable (epa.vic.gov.au/about-epa/laws-ew-laws/what-is-reasonablypracticable). Doing what is reasonably practicable means putting in proportionate controls to minimise the risk of harm to human health and the environment relative to the values being protected and risks presented by the site.



A completed small-scale low risk site with no public roads or external user parking areas will usually generate very little sediment, referred to as total suspended solids (TSS). It is common that the 80% TSS target will not easily be achieved for this type of site.

Other sites may generate significant total suspended solids (TSS) as well as litter, referred to as gross pollutants and should meet all targets.

The generation of sediment and litter during the construction phase is a significant problem and must be addressed effectively for all developments.

You should demonstrate what appropriate controls will be used to ensure the generation of litter and sediment is prevented and controlled during construction to minimise risk of harm.

Blue Factor is designed to support a range of developments of less than 10,000 square metres including small scale residential, apartment developments, small scale commercial and small public use developments which must meet planning requirements including stormwater management quality objectives in the EPA Urban stormwater management guidelines (EPA - Publication 1739.1) It is recommended that MUSIC is used for larger and more complex projects to demonstrate compliance.



Water treatment

Configuration 1



Roof to RWT 634.9m²



Rainwater Tank 1

Rainwater tank retention volume in kilolitres: 15



Ground to Level 6 Residential Apartment, 30 bedroom(s)

Catchments



Roof to RWT 634.9m²



Untreated roof Roof, 99.1m²

Treatments



Rainwater Tank 1

Rainwater tank retention volume in kilolitres: 15

135%



Buildings & dwellings



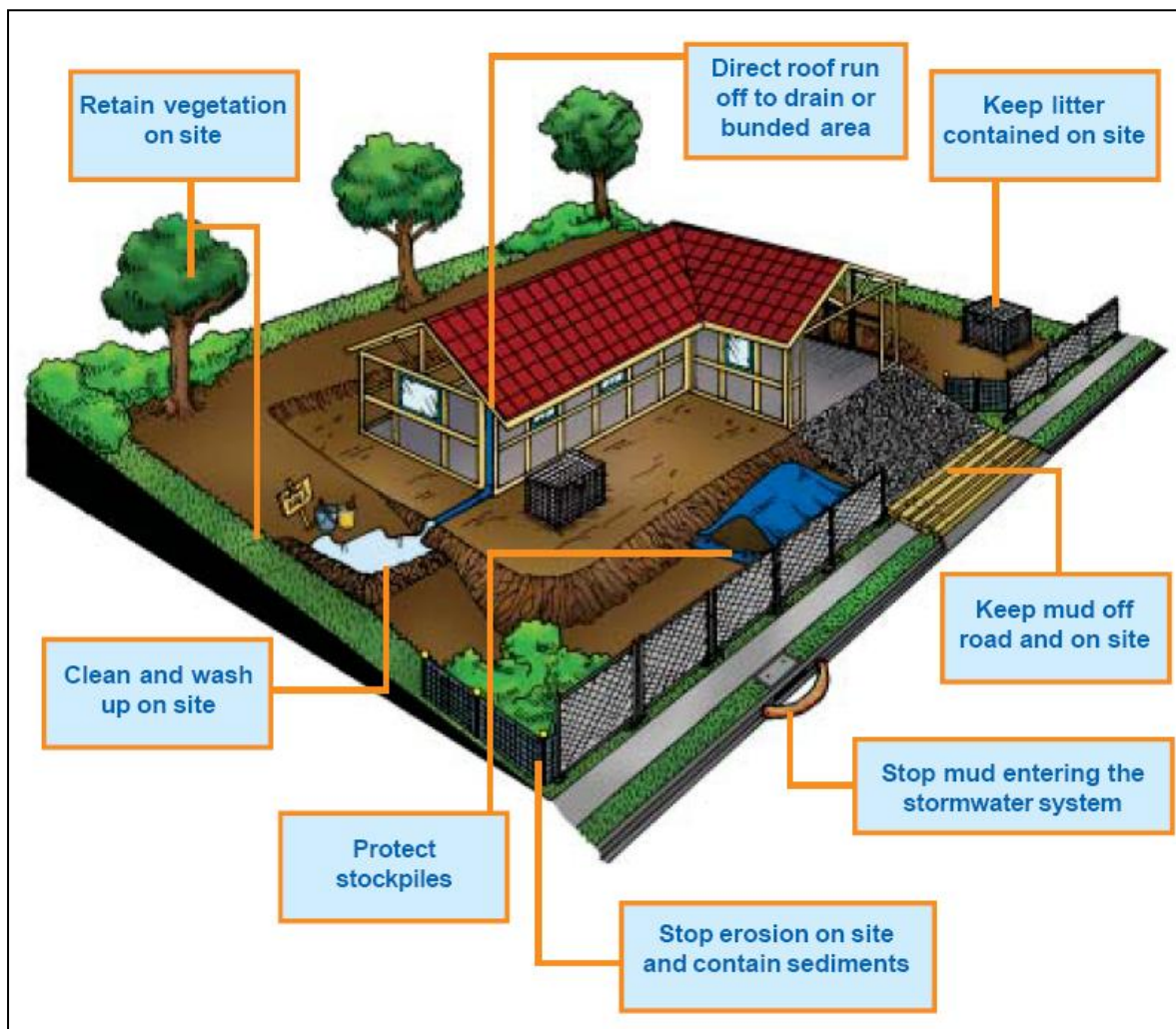
Ground to Level 6 Residential Apartment, 30 bedroom(s)

Water sources	I want to use the average efficiency for a typical new dwelling or building
Basin taps - Primary water source	Mains water
Showers - Primary water source	Mains water
Clothes Washer - Primary water source	Mains water
Toilets connected to mains water	0
Toilets connected to rainwater	24
Toilets connected to recycled water	0
Garden water use	Garden water demands are not in use



Stormwater Management at Construction Site

To manage stormwater management in the construction stage, measures will be put in place to minimise the likelihood of contaminating stormwater. This will mean ensuring buffer strips are in place, sediment traps are installed, and the site will be kept clean from any loose rubbish. The builder will follow the process outlined in “Keeping Our Stormwater Clean – A Builder’s Guide” by Melbourne Water.



Copies of “Keeping Our Stormwater Clean – A Builder’s Guide” booklet can be downloaded from the following website.

<https://www.clearwatervic.com.au/resource-library/guidelines-and-strategy/keeping-our-stormwater-clean-a-builders-guide.php>



APPENDIX B – WSUD MAINTENANCE & INSTALLATION

Installation

Rainwater Tank(s)

The rainwater tank(s) will be installed below ground. Its manufacturer or material has not been nominated. It will be installed with a mesh insect cover over the inlet pipe to ensure the tank does not become a breeding ground for pests. Mesh needs to be installed over overflow pipes and if a manhole is present it needs to be properly sealed.

Please refer to the architectural drawings for the location of the rainwater tank.

Pumps

The pumps required either to divert the stormwater runoff to the rainwater tank or to distribute the collected water to the end uses (toilets) will be required to be installed as per the chosen manufacturer specifications.

Inspection Requirements

Rainwater Tanks

Inspections of roof areas and gutters leading to the tank should take place every 6 months. Rainwater in the tanks should be checked every 6 months for mosquito infestation.

The rainwater tank should be examined every 2 years for sludge build up.

Ensure the monitoring system (be it digital or a simple float system) is functioning properly by checking the water level in the rainwater tanks.

Pumps

The pumps required will be required to be routinely inspected by listening for the day-to-day operation of the pumps. Unusual noise or no noise should be investigated. Inspection should occur as per the chosen manufacturer specifications.

Clean Out / Maintenance Procedure

Rainwater Tank, Roof, and Gutters

Rainwater tanks will require the roof and gutters onsite to be maintained; gutters should be checked, maintained, and cleaned every six months to avoid blockages from occurring. If a leaf blocking system is installed this can be completed annually.

Any trees onsite should be maintained every 6 months with branches overhanging the roof removed.

Water ponding in gutters should be avoided as this provides a breeding ground for mosquitos; tanks should also not become breeding grounds for mosquitoes. If mosquitoes are detected in the tank remedial steps need to occur to prevent breeding. If mosquitoes or other insects are found in rainwater tanks, the point of entry should be

located and repaired. As well as preventing further access, this will prevent the escape of emerging adults. Gutters should be inspected to ensure they do not contain ponded water and be cleaned if necessary.

Please refer to <https://www.health.vic.gov.au/sites/default/files/2022-11/Keeping-your-rainwater-tank-safe-from-mosquitos.pdf> for more information on mosquito control.

Rainwater tanks should be checked by regular maintenance person every 3-6 months to ensure that connection to the building is maintained and there are no blockages.

A simple way to ensure the tank is operating as intended would be through the installation of a smart monitoring device (e.g. OneBox®). These systems allow users to operate tanks remotely from internet or smartphone, monitor and control the tanks in real time, allow automatic release of stored water prior to storm events, alert users if there is any blockage and view tank history and usage patterns.

Alternatively, onsite tank gauges can help those familiar with the tank know if the tank is not working correctly.

Pumps

Maintenance should occur as per the chosen manufacturer specifications. All strainers and filters should be cleaned every 6 months. Good quality pump should provide trouble free service for up to 10 years.

Commissioning

Rainwater Tank

All rainwater tanks should be washed or flushed out prior to use. All inlets and outlets should be correctly sealed to prevent insects entering. Connection to all toilets in the development should be tested (dye test or equivalent).

Please note if new roof coating or paint is to be installed then the first few run-offs after installation need to be discarded.

Pumps

Commissioning should occur as per the chosen manufacturer specifications.



Summary

The following needs to occur onsite to ensure compliance with WSUD requirements and maintain operation of rainwater tank and connections onsite.

Task	When?	Requirement
Inspect Rainwater tanks	Every 6 months	• Check for any damage/compression • Mosquitoes infestation
	Every 2 years	• Sludge Build up – if sludge build up occurs a vacuum tank needs to be called out to site.
Inspect roofs & gutters	Every 6 months	• Clean out of leaves / debris. • Remove any overhanging branches onsite.



APPENDIX C – VOC & FORMALDEHYDE EMISSION LIMITS

The following table are an extract of the Green Star Design and as built submission guidelines:

Table 13.1.1: Maximum TVOC Limits for Paints, Adhesives and Sealants

Product Category	Max TVOC content in grams per litre (g/L) of ready to use product.
General purpose adhesives and sealants	50
Interior wall and ceiling paint, 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 sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

The product complies with the Total VOC (TVOC) limits specified in the Table below.

Carpet Test Standards and TVOC Emissions Limits

Test protocol	Limit
ASTM D5116 - Total VOC limit	0.5mg/m ² per hour
ASTM D5116 - 4-PC (4-Phenylcyclohexene)	0.05mg/m ² per hour
ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m ² per hour
ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m ² per hour



Table 13.2: Formaldehyde Emission Limit Values for 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	$\leq 1\text{mg/L}$
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	$\leq 1.5\text{ mg/L}$
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	$\leq 1\text{mg/L}$
AS/NZS 4357.4 - Laminated Veneer Lumber (LVL)	$\leq 1\text{mg/L}$
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	$\leq 1\text{mg/L}$
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	$\leq 1\text{mg/L}$
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	$\leq 1\text{mg/L}$
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	$\leq 0.1\text{ mg/m}^2\text{hr}^*$
ASTM D5116 (applicable to high pressure laminates and compact laminates)	$\leq 0.1\text{ mg/m}^2\text{hr}$
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	$\leq 0.1\text{ mg/m}^2\text{hr}$ (at 3 days)
ASTM D6007	$\leq 0.12\text{mg/m}^{3**}$
ASTM E1333	$\leq 0.12\text{mg/m}^{3***}$
EN 717-1 (also known as DIN EN 717-1)	$\leq 0.12\text{mg/m}^3$
EN 717-2 (also known as DIN EN 717-2)	$\leq 3.5\text{mg/m}^2\text{hr}$

*mg/m²hr may also be represented as mg/m²/hr.



APPENDIX D – GREEN TRAVEL PLAN CONSIDERATION

The site has access to Melbourne's Public Transport system which will allow residents and visitors to access the site without using their personal cars. A train station and bus stops for different bus routes are well within walking distance of the development.

Train Services

Yarraman station is the closest station to the development.

This station provides access to the Melbourne – Pakenham and Cranbourne lines. It is approximately 2km northwest of the proposed development and both inbound and outbound platforms can be accessed.

The train peak hour services during weekdays run from around 7.30am to 11.54pm inbound and 5pm to 7pm outbound.

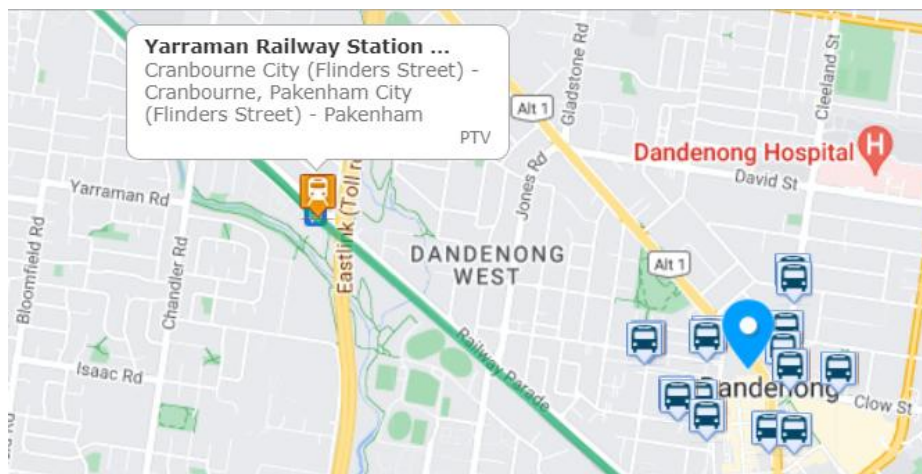


Figure 7: Train station around the site

Bus Routes

The nearest bus stop: Dandenong Market/ Cleeland Street is 200m away from the proposed development with the following route(s):

- **Route No. 695** Belgrave - Gembrook
- **Route No. 697** Belgrave – Belgrave South
- **Route No. 802** Dandenong – Chadstone SC
- **Route No. 804** Dandenong – Chadstone SC
- **Route No. 811** Dandenong – Brighton
- **Route No. 861** Dandenong – Endeavour Hills

Other bus stops close to the subject site:

Cleeland Street/ Clow Street is 200m away from the proposed development with the following route(s):

- **Route No. 843** Dandenong Station – Endeavour Hills
- **Route No. 845** Dandenong Station – Endeavour Hills



- **Route No. 862** Dandenong – Chadstone SC
- **Route No. 901** Melbourne Airport – Frankston
- **Route No. 982** Dandenong Station – Cranbourne Park

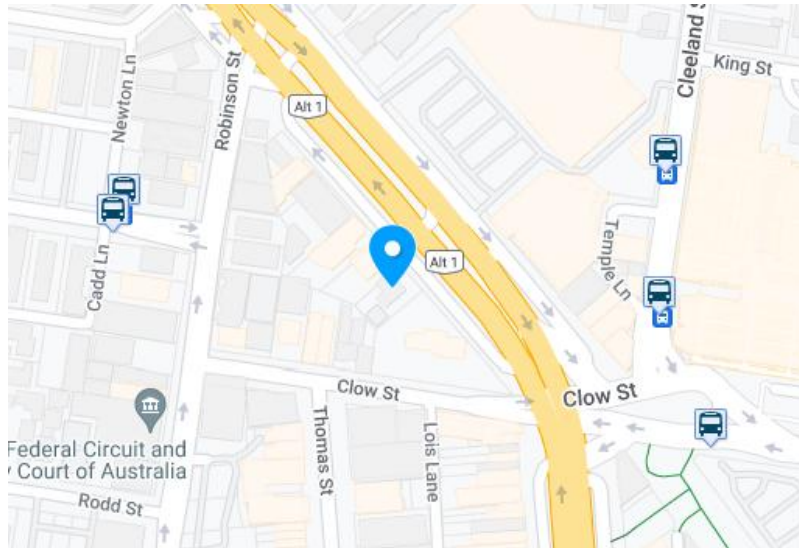


Figure 8: Location of Bus stops option around the site.

Alternative Modes of Transport

Non-motorised forms of travel will be heavily promoted throughout the development using a range of prompts. This will be achieved through the preparation of Welcome Packs and Information Boards, which will encourage residents to use non-motorised means of travel.

Cycling

Cycling is one of the healthiest and sustainable forms of Green Travel. In inner urban areas, cycling is often much faster than walking, and when traffic is heavy, it can be much quicker to travel by bike than by car or public transport.

The Metropolitan Ring Road path is located towards the north of the site. It is a shared path for pedestrians and cyclists to use which allows them to avoid major roads and vehicular traffic congestion.

Other shared path or informal bike routes are available around the development.

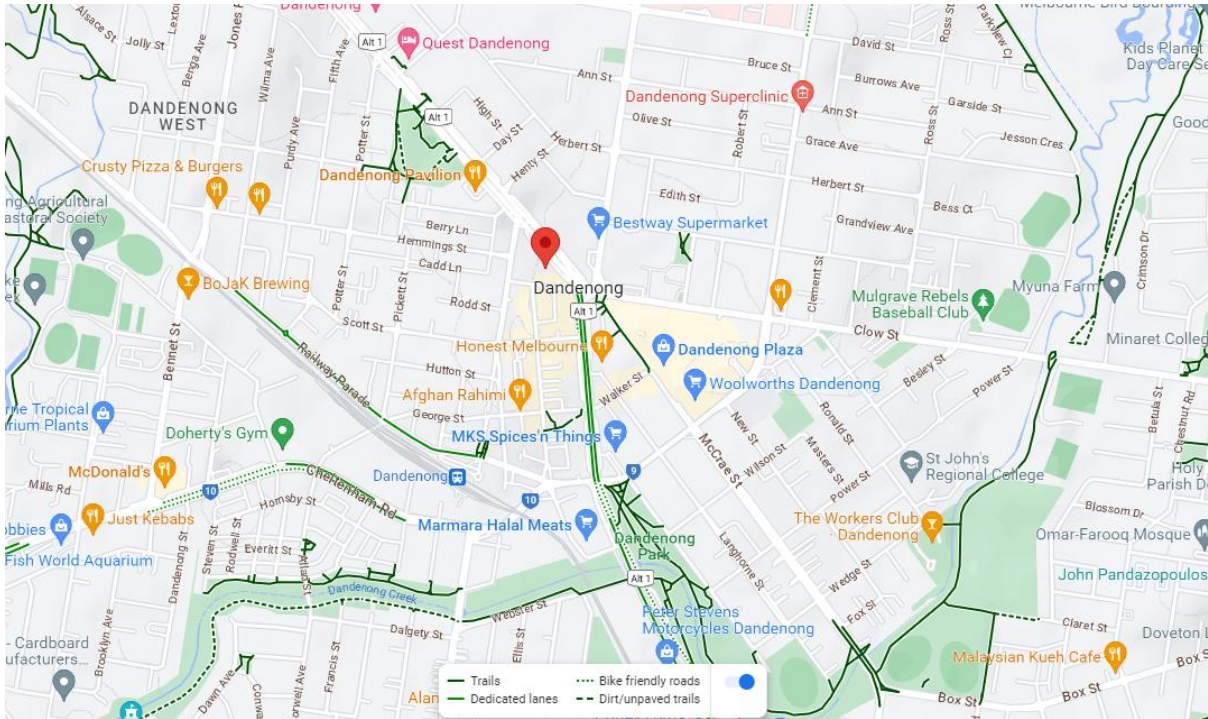


Figure 9: Trails around the site

Please see link for more information: <https://www.vicroads.vic.gov.au/traffic-and-road-use/cycling/bicycle-route-maps>

Occupants will be able to store their bicycle on secure bicycle racks in the basement.

Walking

There are few facilities within walking distance of the site. These are within a 1 km radius of the development which takes approximately 5-20 minutes to walk to at average walking pace.

The Princes Highway site has been assessed using the “Walk Score” tool. This tool using Google maps takes into account the number of facilities within close proximity of the site and provides a score between 1 and 100, with 1 being heavily car dependent with all facilities far from the site and 100 representing a location that is easily accessible to several facilities by foot. The development achieves a score of 97 out of 100, which is classified as “Walker’s Paradise”. A walk score of 90-100 indicates that daily errands will not require a car for occupants.

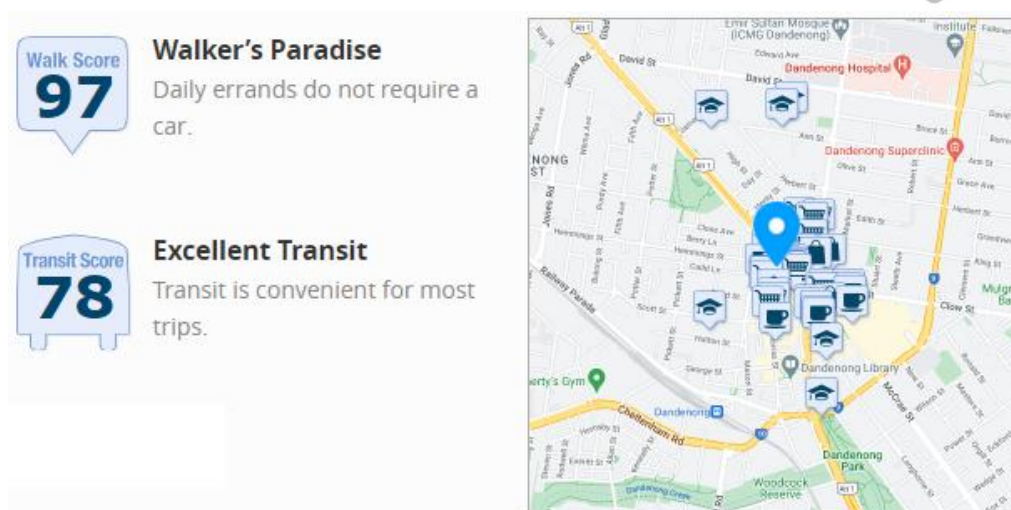


Figure 10: Walkscore for 27 Princes Highway, Dandenong

Carpooling/ Ridesharing

Any private carpooling/ ridesharing agreements between residents are encouraged. This will assist in reducing the traffic movements within the building and surrounding streets, which in turn also assist in reducing congestion and vehicle emissions around the building.

Resident information packs will promote the use of a carpooling/ridesharing apps such as:

- Uber: <https://www.uber.com/au/en/>
- Ola: <https://ola.com.au/>
- DiDi: <https://web.didiglobal.com/au/>
- Shebah: <https://www.shebah.com.au/>
- GoCatch: <https://gocatch.com/>
- Bolt: <https://bolt.eu/>

These apps (and similar apps) are available either from the App Store for iPhones, or Google Play Store for Android phones. Alternatively, on-line options are also available.

Car Sharing

More details on locations of shared cars, car models and rates can be found here:

- Car next door: <https://www.carnextdoor.com.au/>

Car-sharing apps are also available either from the App Store or Google Play store on mobile devices.

As outlined in this Green Travel Plan, there are limited alternatives of sustainable transport options available for building users to use in their daily travels. These could assist in reducing the use of private cars by single occupants. Consequently, these initiatives have potential to evolve into a daily routine for the residents of the development.

Occupants will be provided with all required transport information and have been provided with facilities such as bicycle storage areas and secure parking onsite.



Welcome Packs – Sustainable Transport Options

All occupants (residents) will be provided with a welcome pack. This welcome pack will include the following as a minimum:

Promotion of Public Transport

- Location/Direction of nearest bus stops and their timetables.
- Location/Direction of nearest train station and train timetables.
- Information on types of tickets and options for public transport fares and concession conditions.

Bicycle Facilities

- Location of bicycle parking area in the development.
- Location of nearby parks and amenities clearly marked on a map.
- Bicycle trail map of the area.

Walking

- TravelSmart map of the surrounding area.
- A copy of Green Travel Plan.

Carpooling/ Ridesharing

- Information and link to solutions for carpooling/ ridesharing

ASPECT	ACTION	RESPONSIBILITY
Provide train and bus timetables to all occupants	Timetables to be provided in welcome pack, along with important information provided by PTV at the time of printing.	<i>Developer / Owner</i>
Provide secure bike parking for tenants and visitors	Provision of secure access to the occupants. 29 bike spaces to be provided.	<i>Architect, Builder</i>
Welcome Packs	Prepare Welcome Pack for tenants as per requirement of this Green Travel Plan and provide to occupants upon purchase or start of lease.	<i>Developer / Owner</i>



APPENDIX E – BESS ASSESSMENT & DAYLIGHT INPUT

The BESS daylight built-in calculator has been used to assess the residential part of this development as it is deemed sufficient to demonstrate the level of daylight access. The calculations below and in our BESS assessment clearly show that the overall IEQ levels for the development achieve best practice, which includes daylight access.

The majority of bedrooms and all living rooms in the proposed development comply with BESS Deemed-To-Satisfy daylight criteria as follows:

- Ceiling heights are 2.7m.
- All rooms are less than 8m deep – South facing living areas are less than 5m.
- Glazing to be 60% VLT in habitable rooms (apartment only).
- External windows are provided for each bedroom.
- Building separation in line with BESS tool notes requirements.

A total of 34 living rooms and 54 bedrooms in the development do not meet the DTS requirements. Please see the markup below in BLUE for living areas and RED for bedrooms that failed to meet the BESS DTS requirements. The rest of the rooms have been input as auto pass in BESS:

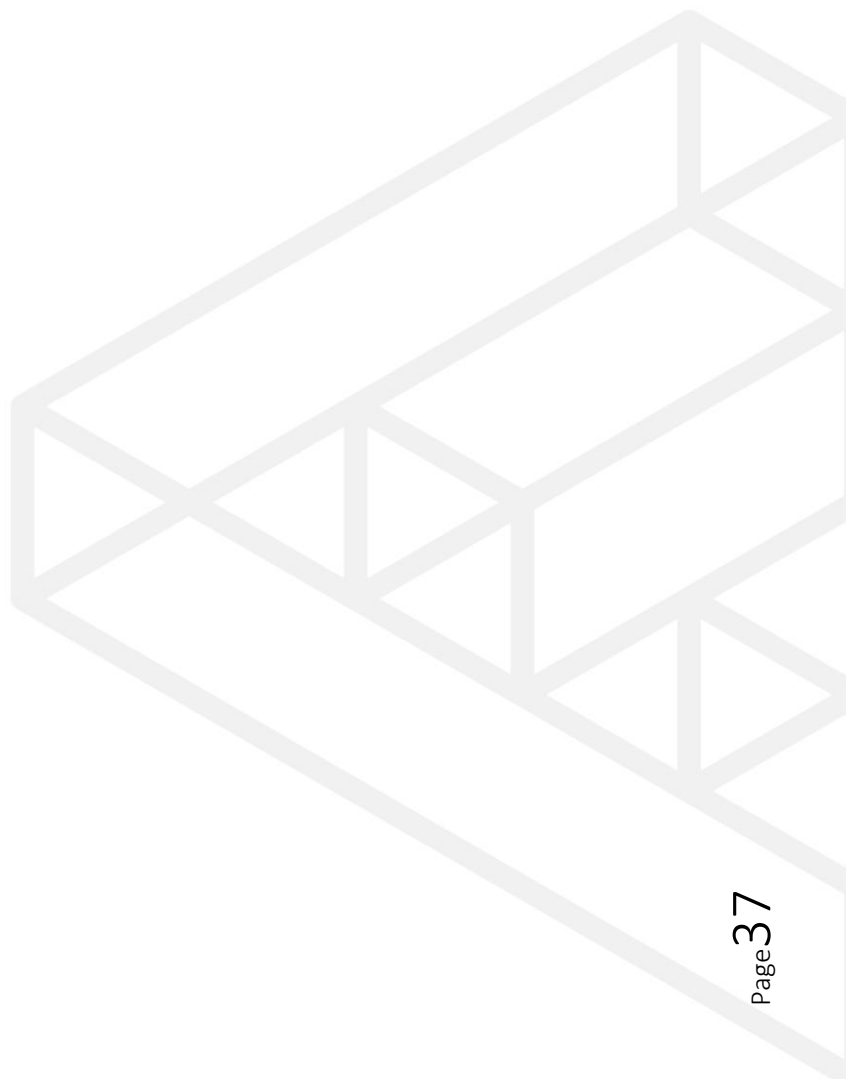




Figure 11: Markup of non-DTS rooms on Levels 4 to 11

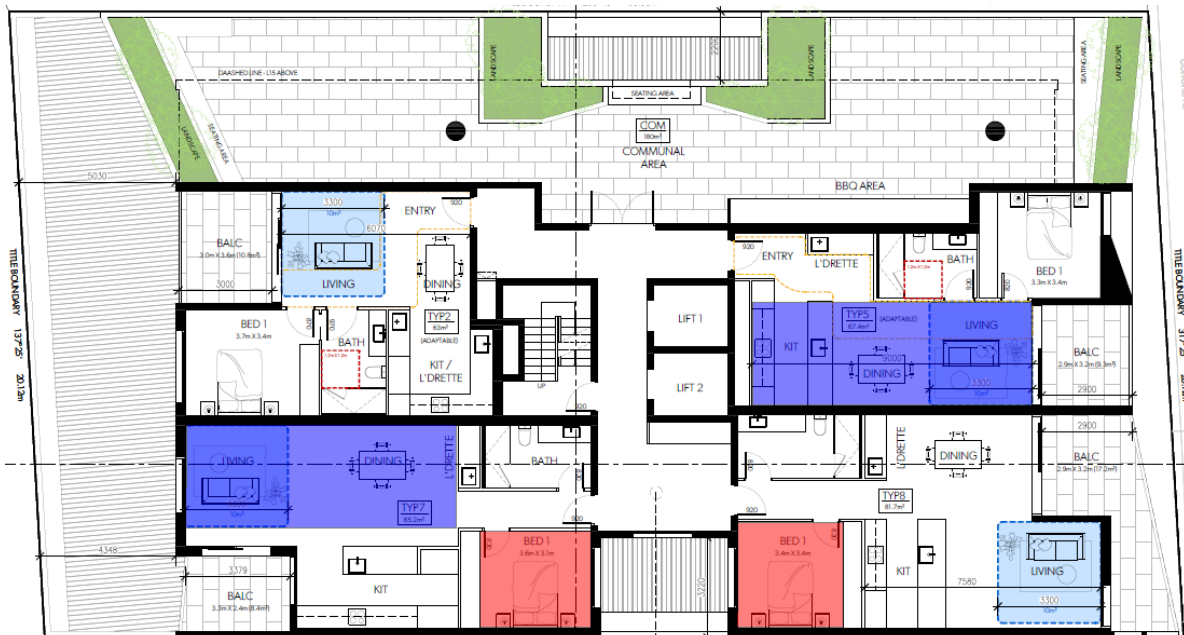


Figure 12: Mark-up of non-DTS rooms Level 12

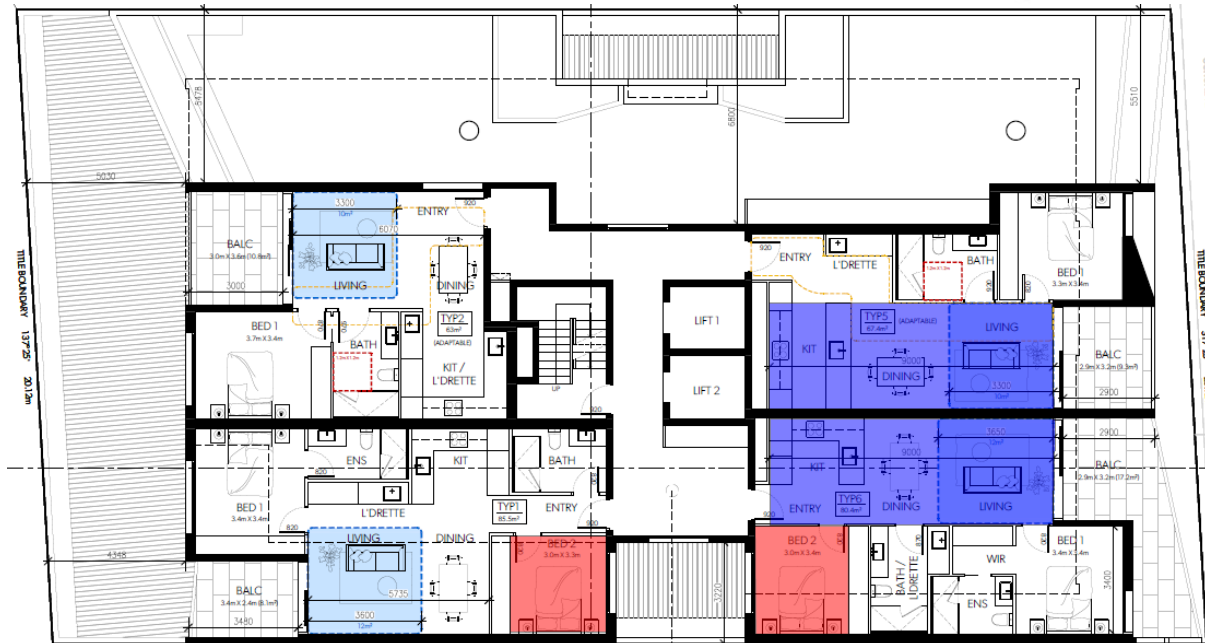


Figure 13: Mark-up of non-DTS rooms Levels 13-14

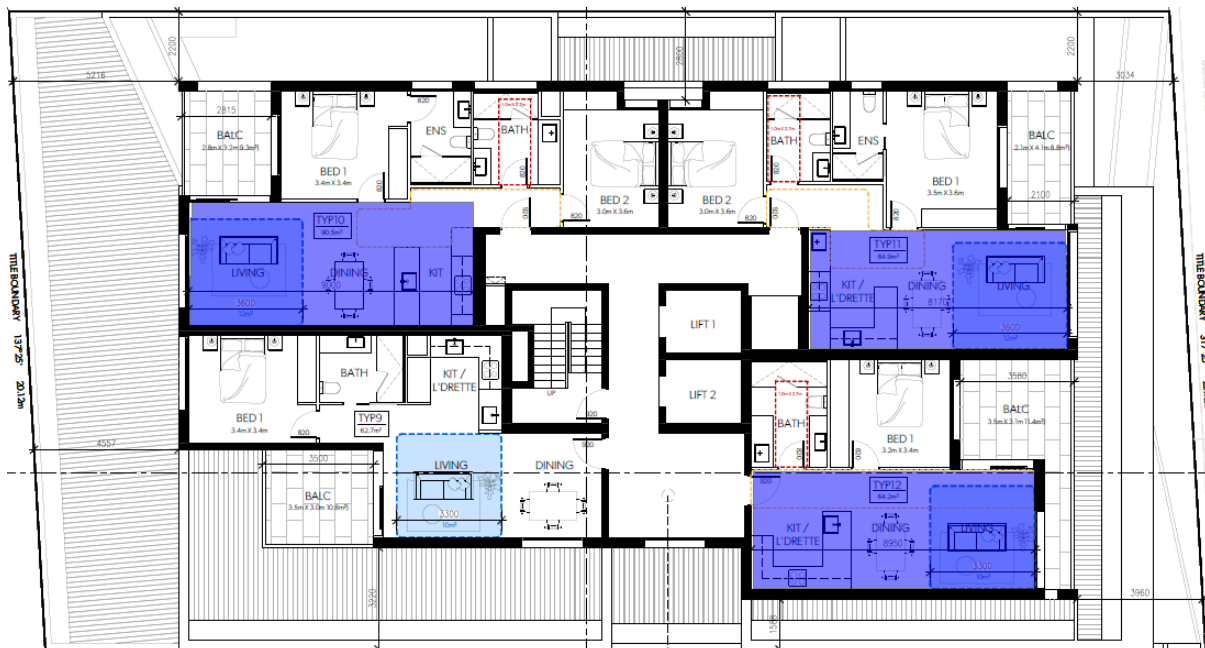


Figure 14: Mark-up of non-DTS rooms Levels 15-18

BESS IEQ section requires sky angles, window sizes, orientation, window area and glass type to be input within the in-built calculator.

LIVING SPACES

A total of 34 living rooms are exceeding the maximum depth of 8m (rooms in BLUE above). These living rooms are assumed as non-DTS and have been input in the BESS calculator as follows:

Typ. 5: Living Room

Living room floor area has been assumed as 30.3m².

Vertical Angle:

The vertical angle for the living room was calculated as 28°.

Horizontal Angle:

The horizontal angle for the living rooms has been assumed as 53°.

Living room window size:

The window size of the living room of apartment has been assumed as 3.2m (width) x 2.7m (height) = 8.64m².

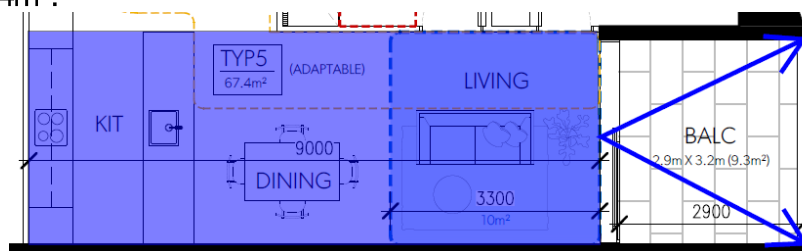


Figure 15: Horizontal Angle of living room Typ. 5

Typ. 6: Living Room

Living room floor area has been assumed as 26m².

Vertical Angle:

The vertical angle for the living room was calculated as 28°.

Horizontal Angle:

The horizontal angle for the living rooms has been assumed as 59.6°.

Living room window size:

The window size of the living room of apartment has been assumed as 3.2m (width) x 2.7m (height) = 8.64m².

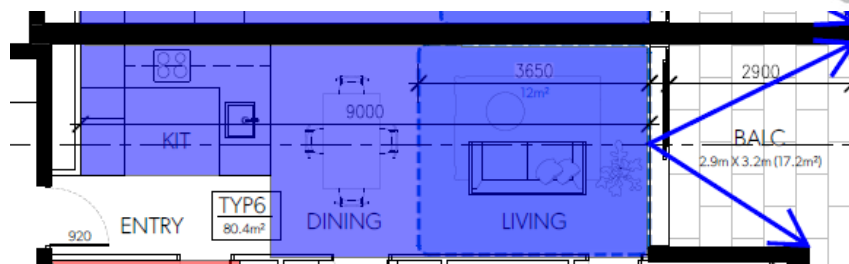


Figure 16: Horizontal Angle of living room Typ. 6

Typ. 7: Living Room

Living room floor area has been assumed as 28.7m².

Vertical Angle:

The vertical angle for the living room was calculated as 90° as there is no overhang above.

Horizontal Angle:

The horizontal angle for the living rooms has been assumed as 180°.

Living room window size:

The window size of the living room of apartment has been assumed as 1.8m (width) x 2.7m (height) = 4.86m².

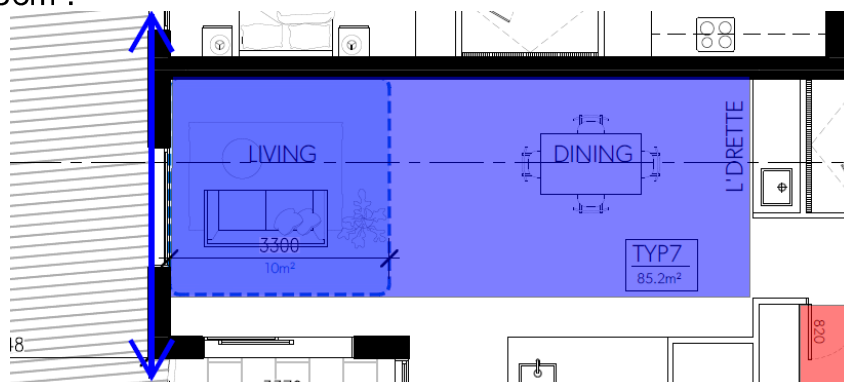


Figure 17: Horizontal Angle of living room Typ. 7

Typ. 10: Living Room

Living room floor area has been assumed as 25m².

Vertical Angle:

The vertical angle for the living room was calculated as 90° as there is no overhang above.

Horizontal Angle:

The horizontal angle for the living rooms has been assumed as 180°.

Living room window size:

The window size of the living room of apartment has been assumed as 2.3m (width) x 0.9m (height) = 2.07m².

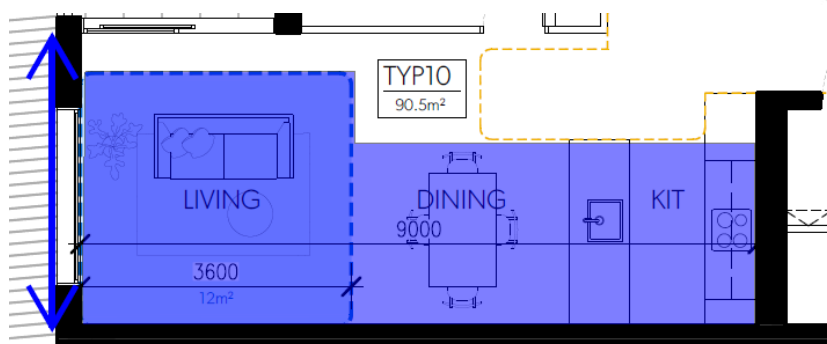


Figure 18: Horizontal Angle of living room Typ. 10

Typ. 11: Living Room

Living room floor area has been assumed as 26m².

Vertical Angle:

The vertical angle for the living room was calculated as 90° as there is no overhang above.

Horizontal Angle:

The horizontal angle for the living rooms has been assumed as 180°.

Living room window size:

The window size of the living room of apartment has been assumed as 3.3m (width) x 2.7m (height) = 8.91m².

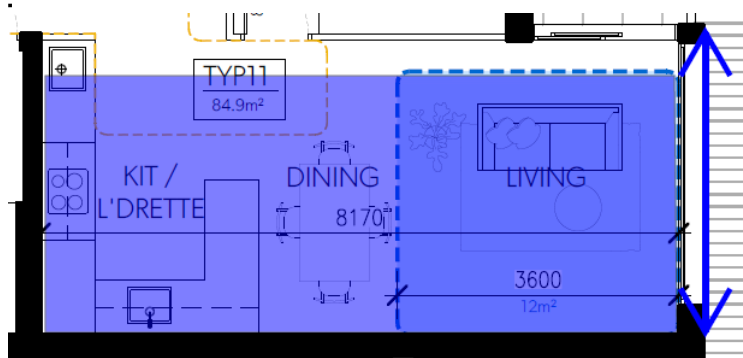


Figure 19: Horizontal Angle of living room Typ. 11

Typ. 12: Living Room

Living room floor area has been assumed as 23m².

Vertical Angle:

The vertical angle for the living room was calculated as 49.6°.

Horizontal Angle:

The horizontal angle for the living rooms has been assumed as 128°.

Living room window size:

The window size of the living room of apartment has been assumed as 2.5m (width) x 2.7m (height) = 6.75m².

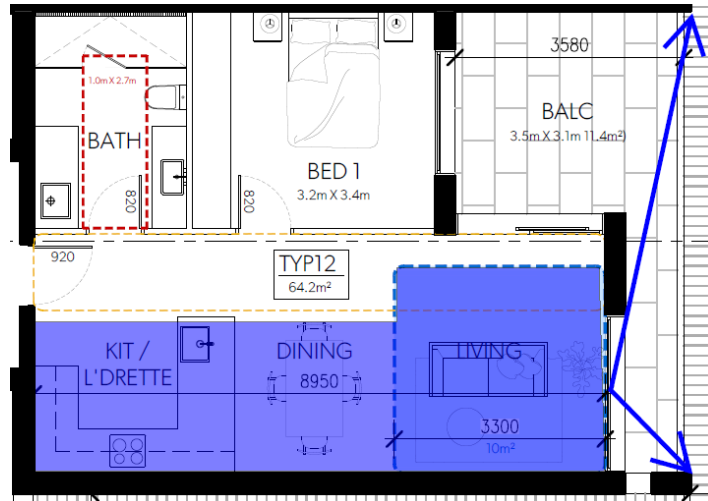


Figure 20: Horizontal Angle of living room Typ.12

Bedroom Spaces

A total of 54 bedrooms in the development, shown in RED in the mark-up above, are not meeting the minimum lightwell areas and dimensions. These 29 bedrooms are assumed as non-DTS and have been input in the BESS calculator as follows:

Typ 1: Bedroom 02

Bedroom floor area has been assumed as 9.3m^2 .

Vertical Angle:

The vertical angle for the bedroom was calculated as 90° as there is no overhang above the window.

Horizontal Angle:

The horizontal angle for the bedroom has been assumed as 47.3° .

Living room window size:

Window sizes of the bedroom of the apartment has been assumed as 2.0m (width) x 2.7m (height) = 5.4m^2

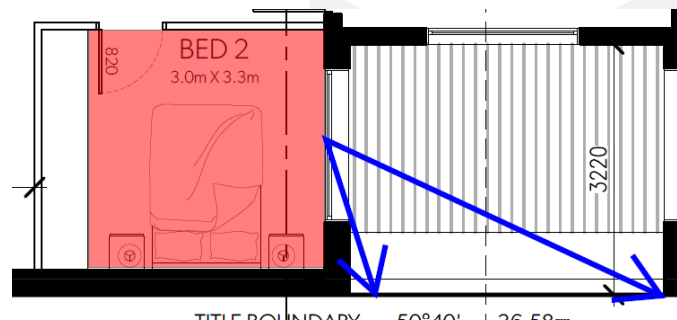


Figure 21: Horizontal Angle of Typ.1 bedroom2



Typ 3: Bedroom 01

Bedroom floor area has been assumed as 12.4m².

Vertical Angle:

The vertical angle for the bedroom was calculated as 90° as there is no overhang above the window.

Horizontal Angle:

The horizontal angle for the bedroom has been assumed as 98.5°.

Living room window size:

Window sizes of the bedroom of the apartment has been assumed as 2.0m (width) x 2.7m (height) = 5.4m²

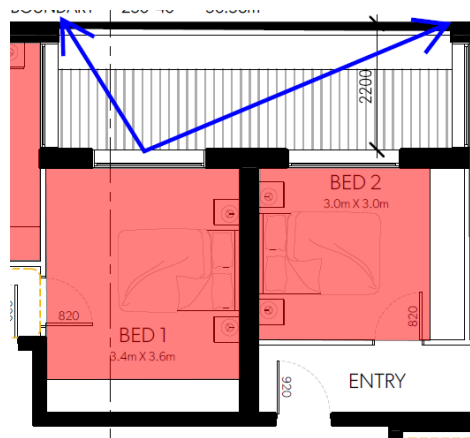


Figure 22: Horizontal Angle of Typ 3 bedroom 1

Typ 3: Bedroom 02

Bedroom floor area has been assumed as 11.5m².

Vertical Angle:

The vertical angle for the bedroom was calculated as 90° as there is no overhang above the window.

Horizontal Angle:

The horizontal angle for the bedroom has been assumed as 54°.

Living room window size:

Window sizes of the bedroom of the apartment has been assumed as 1.8m (width) x 2.7m (height) = 4.86m²

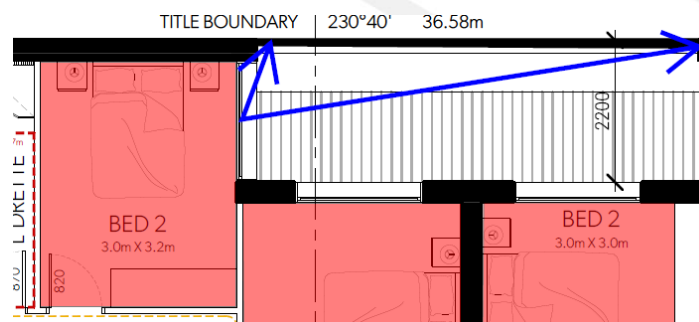


Figure 23: Horizontal Angle of Typ 3 bedroom 2



Typ 6: Bedroom 02

Bedroom floor area has been assumed as 10.2m^2 .

Vertical Angle:

The vertical angle for the bedroom was calculated as 90° as there is no overhang above the window.

Horizontal Angle:

The horizontal angle for the bedroom has been assumed as 50.3° .

Living room window size:

Window sizes of the bedroom of the apartment has been assumed as 2.0m (width) x 2.7m (height) = 5.4m^2

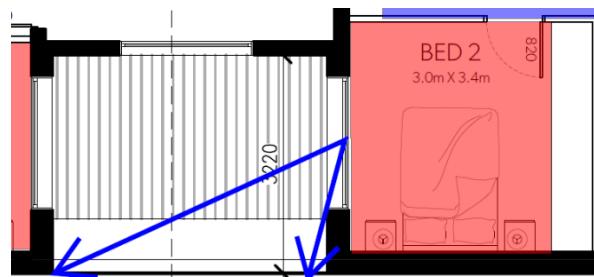


Figure 26: Horizontal Angle of Typ. 6 bedroom 2

Typ 7: Bedroom 01

Bedroom floor area has been assumed as 11.0m^2 .

Vertical Angle:

The vertical angle for the bedroom was calculated as 90° as there is no overhang above the window.

Horizontal Angle:

The horizontal angle for the bedroom has been assumed as 50.3° .

Living room window size:

Window sizes of the bedroom of the apartment has been assumed as 2.0m (width) x 2.7m (height) = 5.4m^2

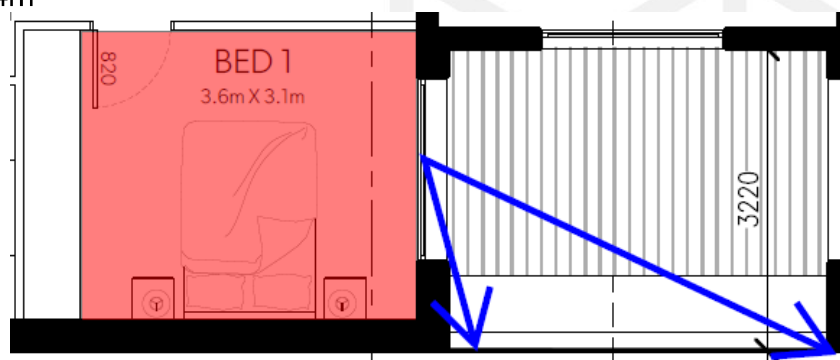


Figure 27: Horizontal Angle of Typ. 7 bedroom 1



Typ 8: Bedroom 01

Bedroom floor area has been assumed as 11.5m^2 .

Vertical Angle:

The vertical angle for the bedroom was calculated as 90° as there is no overhang above the window.

Horizontal Angle:

The horizontal angle for the bedroom has been assumed as 51° .

Living room window size:

Window sizes of the bedroom of the apartment has been assumed as 2.0m (width) x 2.7m (height) = 5.4m^2

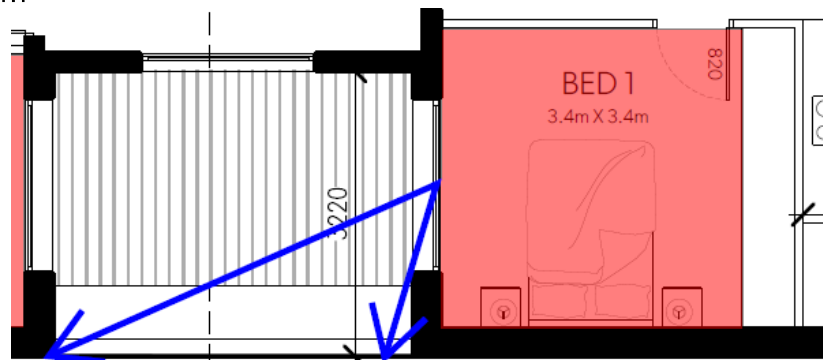


Figure 28: Horizontal Angle of Typ. 8 bedroom 1

BESS Buildings Report

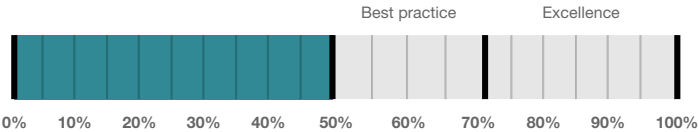
Built Environment Sustainability Scorecard



This BESS report outlines the sustainable design commitments of the proposed development at 27 Princes Hwy Dandenong Victoria 3175. 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 Dandenong 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



50%

Project details

Name	27 Princes Hwy, Dandenong VIC 3175, Australia
Address	27 Princes Hwy Dandenong Victoria 3175
Project ID	585E122A-R5
BESS Version	BESS-7
Date	28 July 2026
Software version	2.3.0-B.655



Site type	Multi unit development (apartment building)
Account	phillip@fraterconsultingservices.com.au
Application no.	
Site area	734 m ²
Building floor area	5,671 m ²

Performance by category

● This project ● Maximum available

Category	Weight	Score	Pass
Management	5%	12%	●
Water	9%	57%	✓
Energy	28%	52%	✓
Stormwater	14%	100%	✓
IEQ	17%	63%	✓
Transport	9%	0%	●
Waste	6%	100%	●
Urban Ecology	6%	11%	●
Innovation	9%	0%	●

Buildings

Name	Height	Footprint	% of total footprint
development	19	10,124 m²	100%

Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	Building	% of total area
Apartment				
Typ 6 (levels 7-11)	7	80.4 m²	development	9%
Typ 5 (levels 7-11)	8	67.4 m²	development	9%
Typ 4 (levels 7-11)	7	79.6 m²	development	9%
Typ 2 (levels 7-11)	8	63.0 m²	development	8%
Typ 1 (levels 7-11)	5	85.5 m²	development	7%
Typ 3 (levels 7-11)	5	72.1 m²	development	6%
Typ 11	3	84.9 m²	development	4%
Typ 10	3	90.5 m²	development	4%
Typ 1 (levels 5-6)	2	85.5 m²	development	3%
Typ 12	3	64.2 m²	development	3%
Typ 9	3	62.7 m²	development	3%
Typ 6 (levels 5-6)	2	80.4 m²	development	2%
Typ 5 (levels 5-6)	2	67.4 m²	development	2%
Typ 4 (levels 5-6)	2	79.6 m²	development	2%
Typ 3 (levels 5-6)	2	72.1 m²	development	2%
Typ 2 (levels 5-6)	2	63.0 m²	development	2%
Typ 6 (level 4)	1	80.4 m²	development	1%
Typ 5 (level 4)	1	67.4 m²	development	1%
Typ 4 (level 4)	1	79.6 m²	development	1%
Typ 3 (level 4)	1	72.1 m²	development	1%
Typ 2 (level 4)	1	63.0 m²	development	1%
Typ 1 (level 4)	1	85.5 m²	development	1%
Typ 10 (level 18)	1	90.5 m²	development	1%
Typ 9 (level 18)	1	62.7 m²	development	1%
Typ 12 (level 18)	1	64.2 m²	development	1%
Typ 11 (level 18)	1	84.9 m²	development	1%
Typ 8	1	81.7 m²	development	1%
Typ 7	1	85.2 m²	development	1%
Total	76	5,671 m²	100%	

Supporting Evidence

Shown on Floor Plans

Credit	Requirement	Response	Status
Management 3.1	Annotation: Individual utility meters to be provided to all individual dwellings		-
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)		-
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
IEQ 1.2	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
IEQ 1.3	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'		-
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		-

Supporting Documentation

Credit	Requirement	Response	Status
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		-
Stormwater 1.1	STORM report or MUSIC model		-
IEQ 1.2	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
IEQ 1.3	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		-
Waste 1.1	Details regarding how the existing building is being reused on-site		-

Credit summary

Management Overall contribution 4.5%

		12%
1.1 Pre-Application Meeting		0%
2.2 Thermal Performance Modelling - Multi-Dwelling Residential		0%
3.1 Metering - Residential		100%
3.3 Metering - Common Areas		0%
4.1 Building Users Guide		0%

Water Overall contribution 9.0%

		Minimum required 50%	57%	✓ Pass
1.1 Potable Water Use Reduction			40%	
3.1 Water Efficient Landscaping			100%	
4.1 Building Systems Water Use Reduction			100%	

Energy Overall contribution 27.5%

		Minimum required 50%	52%	✓ Pass
1.2 Thermal Performance Rating - Residential			0%	
2.1 Greenhouse Gas Emissions			100%	
2.2 Peak Demand			0%	
2.3 Electricity Consumption			100%	
2.4 Gas Consumption			100%	
2.6 Electrification			0%	⊘ Disabled
Credit is available when project is declared to have no gas connection.				
3.1 Carpark Ventilation			100%	
3.2 Hot Water			100%	
3.4 Clothes Drying			100%	
3.6 Internal Lighting - Apartments			100%	
4.2 Renewable Energy Systems - Solar			0%	
4.4 Renewable Energy Systems - Other			0%	⊘ Disabled
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%	

IEQ Overall contribution 16.5%

		Minimum required 50%	63%	✓ Pass
1.1 Daylight Access - Living Areas			0%	
1.2 Daylight Access - Bedrooms			100%	
1.3 Winter Sunlight			100%	
1.5 Daylight Access - Minimal Internal Bedrooms			100%	
2.1 Effective Natural Ventilation			66%	

Transport Overall contribution 9.0%

		0%
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		0%
2.2 Car Share Scheme		N/A  Scoped Out
		n/a
2.3 Motorbikes / Mopeds		0%

Waste Overall contribution 5.5%

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

Urban Ecology Overall contribution 5.5%

		11%
1.1 Communal Spaces		100%
2.1 Vegetation		0%
2.2 Green Roofs		0%
2.3 Green Walls and Facades		0%
2.4 Private Open Space - Balcony / Courtyard Ecology		0%
3.1 Food Production - Residential		0%

Innovation Overall contribution 9.0%

		0%
1.1 Innovation		0%  Disabled
Achieve a project score of 50% or above to enable this credit.		

Credit breakdown

Management Overall contribution 4.5%

	12%
--	-----

1.1 Pre-Application Meeting	0%
Score Contribution	This credit contributes 37.5% towards the category score.
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?
Question	Criteria Achieved ?
Project	No
2.2 Thermal Performance Modelling - Multi-Dwelling Residential	0%
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	No
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	0%
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	No
4.1 Building Users Guide	0%
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	No

Water Overall contribution 9.0%

		Minimum required 50%	57%	✓ Pass
--	--	-----------------------------	------------	---------------

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 (>= 6.0 but <= 7.5)
Bath: All	Scope out
Kitchen Taps: All	>= 6 Star WELS rating
Bathroom Taps: All	>= 6 Star WELS rating
Dishwashers: All	>= 5 Star WELS rating
WC: All	>= 4 Star WELS rating
Urinals:	
Typ 1 (levels 7-11)	Scope out
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	
Typ 1 (level 4)	
	>= 5 Star WELS rating
Washing Machine Water Efficiency: All	
	Occupant to Install

Which non-potable water source is the dwelling/space connected to?:	
Typ 1 (levels 7-11)	-
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	RWT
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Non-potable water source connected to Toilets:	
Typ 1 (levels 7-11)	No
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 2 (levels 7-11)	Yes
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 1 (level 4)	
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	
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?:	
RWT	635 m ²
	-
Tank Size:	
RWT	15,000 Litres
	-
Irrigation area connected to tank:	
RWT	0.0 m ²
	-
Is connected irrigation area a water efficient garden?:	
RWT	No
	-
Other external water demand connected to tank?:	
RWT	0.0 Litres/Day
	-

1.1 Potable Water Use Reduction		40%
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	8949 kL	
Output	Proposed (excluding rainwater and recycled water use)	
Project	6674 kL	
Output	Proposed (including rainwater and recycled water use)	
Project	6465 kL	
Output	% Reduction in Potable Water Consumption	
Project	27 %	
Output	% of connected demand met by rainwater	
Project	100 %	
Output	How often does the tank overflow?	
Project	Very Often	
Output	Opportunity for additional rainwater connection	
Project	3933 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		100%
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	Yes	

Energy Overall contribution 27.5%

		Minimum required 50%	52%	✔ 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:	Electricity & Natural Gas
Dwelling Energy Profiles	
Building: All	development
Below the floor is:	
Typ 1 (levels 7-11)	Another Occupancy
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	Ground or Carpark
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	-
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Above the ceiling is:	
Typ 1 (levels 7-11)	Another Occupancy
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 1 (level 4)	Outside
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (levels 5-6)	-
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Exposed sides:	
Typ 1 (levels 7-11)	3
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 6 (level 4)	
Typ 2 (levels 7-11)	1
Typ 5 (levels 7-11)	
Typ 2 (level 4)	
Typ 5 (level 4)	
Typ 1 (levels 5-6)	-
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

NatHERS Annual Energy Loads - Heat:	
Typ 1 (levels 7-11)	88.0 MJ/sqm
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	-
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

NatHERS Annual Energy Loads - Cool:	
Typ 1 (levels 7-11)	20.0 MJ/sqm
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	-
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	-
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

NatHERS star rating:	
Typ 1 (levels 7-11)	6.5
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	-
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Type of Heating System:	
Typ 1 (levels 7-11)	Reverse cycle space
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	-
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Heating System Efficiency:	
Typ 1 (levels 7-11)	3 Star
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	-
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	-
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Type of Cooling System:	
Typ 1 (levels 7-11)	Refrigerative space
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	-
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Cooling System Efficiency:	
Typ 1 (levels 7-11)	3 Stars
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	-
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Type of Hot Water System:	
Typ 1 (levels 7-11)	Gas Instantaneous 7 star
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	-
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

% Contribution from solar hot water system:	
Typ 1 (levels 7-11)	0 %
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	-
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Is the hot water system shared by multiple dwellings?:	
Typ 1 (levels 7-11)	Yes
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	-
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Clothes Line:	
Typ 1 (levels 7-11)	No drying facilities
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	-
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	
Typ 1 (levels 5-6)	
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Clothes Dryer:

Typ 1 (levels 7-11)	Occupant to Install
Typ 2 (levels 7-11)	
Typ 3 (levels 7-11)	
Typ 4 (levels 7-11)	
Typ 5 (levels 7-11)	
Typ 6 (levels 7-11)	
Typ 7	
Typ 8	
Typ 9	
Typ 10	
Typ 11	
Typ 12	
Typ 11 (level 18)	
Typ 12 (level 18)	
Typ 9 (level 18)	
Typ 10 (level 18)	
Typ 1 (level 4)	
Typ 2 (level 4)	
Typ 3 (level 4)	
Typ 4 (level 4)	
Typ 5 (level 4)	
Typ 6 (level 4)	

Typ 1 (levels 5-6)	-
Typ 2 (levels 5-6)	
Typ 3 (levels 5-6)	
Typ 4 (levels 5-6)	
Typ 5 (levels 5-6)	
Typ 6 (levels 5-6)	

Solar Photovoltaic system profile

System Size (lesser of inverter and panel capacity):	Solar PV	5.0 kW peak
Orientation (which way is the system facing)?:	Solar PV	North
Inclination (angle from horizontal):	Solar PV	15.0 Angle (degrees)

1.2 Thermal Performance Rating - Residential

0%

Score Contribution	This credit contributes 26.1% towards the category score.
Criteria	What is the average NatHERS rating?
Output	Average NATHERS Rating (Weighted)
Apartment	5.4 Stars

2.1 Greenhouse Gas Emissions

100%

Score Contribution	This credit contributes 8.7% 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	331,166 kg CO2
Output	Proposed Building with Proposed Services (Actual Building)
Apartment	135,531 kg CO2
Output	% Reduction in GHG Emissions
Apartment	59 %

2.2 Peak Demand		0%
Score Contribution	This credit contributes 4.3% towards the category score.	
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?	
Output	Peak Thermal Cooling Load - Baseline	
Apartment	953 kW	
Output	Peak Thermal Cooling Load - Proposed	
Apartment	945 kW	
Output	Peak Thermal Cooling Load - % Reduction	
Apartment	< 1 %	
2.3 Electricity Consumption		100%
Score Contribution	This credit contributes 8.7% towards the category score.	
Criteria	What is the % reduction in annual electricity consumption against the benchmark?	
Output	Reference	
Apartment	281,902 kWh	
Output	Proposed	
Apartment	98,965 kWh	
Output	Improvement	
Apartment	64 %	
2.4 Gas Consumption		100%
Score Contribution	This credit contributes 8.7% towards the category score.	
Criteria	What is the % reduction in annual gas consumption against the benchmark?	
Output	Reference	
Apartment	848,754 MJ	
Output	Proposed	
Apartment	672,902 MJ	
Output	Improvement	
Apartment	20 %	
2.6 Electrification		0%  Disabled
Credit is available when project is declared to have no gas connection.		
This credit is disabled	Credit is available when project is declared to have no gas connection.	
3.1 Carpark Ventilation		100%
Score Contribution	This credit contributes 8.7% 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	
3.2 Hot Water		100%

Score Contribution	This credit contributes 4.3% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?
Output	Reference
Apartment	1,008,077 MJ
Output	Proposed
Apartment	704,547 MJ
Output	Improvement
Apartment	30 %
3.4 Clothes Drying	100%
Score Contribution	This credit contributes 4.3% 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	35,533 kWh
Output	Proposed
Apartment	29,914 kWh
Output	Improvement
Apartment	15 %
3.6 Internal Lighting - Apartments	100%
Score Contribution	This credit contributes 8.7% towards the category score.
Criteria	Is the maximum illumination power density (W/m2) in at least 90% of the relevant building class at least 20% lower than required by Table J6.2a of the NCC 2019 Vol 1 (Class 2-9)?
Question	Criteria Achieved ?
Apartment	Yes
4.2 Renewable Energy Systems - Solar	0%
Score Contribution	This credit contributes 4.3% 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	6,222 kWh
Output	% of Building's Energy
Apartment	2 %
4.4 Renewable Energy Systems - Other	0%  Disabled
No other (non-solar PV) renewable energy is in use.	
This credit is disabled	No other (non-solar PV) renewable energy is in use.

Stormwater Overall contribution 13.5%

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

Which stormwater modelling 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	100
Output	Min STORM Score
Project	100

IEQ Overall contribution 16.5%

		Minimum required 50%	63%	✓ 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:		
DTS-compliant living	Living	
Typ. 5 Living		
Typ. 6 Living		
Typ. 7 Living		
Typ. 10 Living		
Typ. 11 Living		
Typ. 12 Living		
DTS-compliant bedroom	Bedroom	
Typ. 1 Bedroom 2		
Typ. 3 Bedroom 1		
Typ. 3 Bedroom 2		
Typ. 4 Bedroom 1		
Typ. 4 Bedroom 2		
Typ. 6 Bedroom 2		
Typ. 7 Bedroom 1		
Typ. 8 Bedroom 1		
Quantity:		
DTS-compliant living	42	
DTS-compliant bedroom	66	
Typ. 5 Living	11	
Typ. 6 Living	10	
Typ. 1 Bedroom 2		
Typ. 6 Bedroom 2		
Typ. 7 Living	1	
Typ. 7 Bedroom 1		
Typ. 8 Bedroom 1		
Typ. 10 Living	4	
Typ. 11 Living		
Typ. 12 Living		
Typ. 3 Bedroom 1	8	
Typ. 3 Bedroom 2		
Typ. 4 Bedroom 1		
Typ. 4 Bedroom 2		

Auto-Pass:	
DTS-compliant living	Yes
DTS-compliant bedroom	
Typ. 5 Living	No
Typ. 6 Living	
Typ. 7 Living	
Typ. 10 Living	
Typ. 11 Living	
Typ. 12 Living	
Typ. 1 Bedroom 2	
Typ. 3 Bedroom 1	
Typ. 3 Bedroom 2	
Typ. 4 Bedroom 1	
Typ. 4 Bedroom 2	
Typ. 6 Bedroom 2	
Typ. 7 Bedroom 1	
Typ. 8 Bedroom 1	
Room Floor Area:	
DTS-compliant living	0.0 m²
DTS-compliant bedroom	
Typ. 5 Living	30.0 m²
Typ. 6 Living	26.0 m²
Typ. 11 Living	
Typ. 7 Living	28.7 m²
Typ. 10 Living	25.0 m²
Typ. 12 Living	23.0 m²
Typ. 1 Bedroom 2	9.3 m²
Typ. 3 Bedroom 1	12.4 m²
Typ. 3 Bedroom 2	11.5 m²
Typ. 8 Bedroom 1	
Typ. 4 Bedroom 1	12.2 m²
Typ. 4 Bedroom 2	8.9 m²
Typ. 6 Bedroom 2	10.2 m²
Typ. 7 Bedroom 1	11.0 m²

Vertical Angle:	
DTS-compliant living	0.0 Angle (degrees)
DTS-compliant bedroom	
Typ. 5 Living	28.0 Angle (degrees)
Typ. 6 Living	
Typ. 7 Living	90.0 Angle (degrees)
Typ. 10 Living	
Typ. 11 Living	
Typ. 1 Bedroom 2	
Typ. 3 Bedroom 1	
Typ. 3 Bedroom 2	
Typ. 4 Bedroom 1	
Typ. 4 Bedroom 2	
Typ. 6 Bedroom 2	
Typ. 7 Bedroom 1	
Typ. 8 Bedroom 1	
Typ. 12 Living	49.6 Angle (degrees)
Horizontal Angle:	
DTS-compliant living	0.0 Angle (degrees)
DTS-compliant bedroom	
Typ. 5 Living	53.0 Angle (degrees)
Typ. 6 Living	59.6 Angle (degrees)
Typ. 7 Living	180 Angle (degrees)
Typ. 10 Living	
Typ. 11 Living	
Typ. 12 Living	128 Angle (degrees)
Typ. 1 Bedroom 2	47.3 Angle (degrees)
Typ. 3 Bedroom 1	98.5 Angle (degrees)
Typ. 3 Bedroom 2	54.0 Angle (degrees)
Typ. 4 Bedroom 1	66.0 Angle (degrees)
Typ. 4 Bedroom 2	102 Angle (degrees)
Typ. 6 Bedroom 2	50.3 Angle (degrees)
Typ. 7 Bedroom 1	
Typ. 8 Bedroom 1	51.0 Angle (degrees)

Window Area:	
DTS-compliant living	0.0 m ²
DTS-compliant bedroom	
Typ. 5 Living	8.6 m ²
Typ. 6 Living	
Typ. 7 Living	4.9 m ²
Typ. 3 Bedroom 2	
Typ. 4 Bedroom 1	
Typ. 10 Living	2.1 m ²
Typ. 11 Living	8.9 m ²
Typ. 12 Living	6.8 m ²
Typ. 1 Bedroom 2	5.4 m ²
Typ. 3 Bedroom 1	
Typ. 4 Bedroom 2	
Typ. 6 Bedroom 2	
Typ. 7 Bedroom 1	
Typ. 8 Bedroom 1	
Window Orientation:	
DTS-compliant living	-
DTS-compliant bedroom	
Typ. 5 Living	North-East
Typ. 6 Living	
Typ. 11 Living	
Typ. 12 Living	
Typ. 1 Bedroom 2	
Typ. 3 Bedroom 1	
Typ. 3 Bedroom 2	
Typ. 7 Bedroom 1	
Typ. 7 Living	South-West
Typ. 10 Living	
Typ. 4 Bedroom 1	
Typ. 4 Bedroom 2	
Typ. 6 Bedroom 2	
Typ. 8 Bedroom 1	

Glass Type:		
DTS-compliant living	-	
DTS-compliant bedroom		
Typ. 5 Living	Green Double (VLT 0.58)	
Typ. 6 Living		
Typ. 7 Living		
Typ. 10 Living		
Typ. 11 Living		
Typ. 12 Living		
Typ. 1 Bedroom 2		
Typ. 3 Bedroom 1		
Typ. 3 Bedroom 2		
Typ. 4 Bedroom 1		
Typ. 4 Bedroom 2		
Typ. 6 Bedroom 2		
Typ. 7 Bedroom 1		
Typ. 8 Bedroom 1		
Daylight Criteria Achieved?:		
DTS-compliant living	Yes	
DTS-compliant bedroom		
Typ. 7 Living		
Typ. 10 Living		
Typ. 11 Living		
Typ. 12 Living		
Typ. 1 Bedroom 2		
Typ. 3 Bedroom 1		
Typ. 3 Bedroom 2		
Typ. 4 Bedroom 1		
Typ. 4 Bedroom 2		
Typ. 6 Bedroom 2		
Typ. 7 Bedroom 1		
Typ. 8 Bedroom 1		
Typ. 5 Living	No	
Typ. 6 Living		
1.1 Daylight Access - Living Areas		0%
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	72 %	
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		100%

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	Yes		
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	71 %		

Transport Overall contribution 9.0%

		0%
1.1 Bicycle Parking - Residential		0%
Score Contribution	This credit contributes 25% towards the category score.	
Criteria	How many secure and undercover bicycle spaces are there per dwelling for residents?	
Question	Bicycle Spaces Provided ?	
Apartment	29	
Output	Min Bicycle Spaces Required	
Apartment	76	
1.2 Bicycle Parking - Residential Visitor		0%
Score Contribution	This credit contributes 25% towards the category score.	
Criteria	How many secure bicycle spaces are there per 5 dwellings for visitors?	
Question	Visitor Bicycle Spaces Provided ?	
Apartment	0	
1.3 Bicycle Parking - Convenience Residential		0%  Disabled
Credit 1.1 must be achieved first.		
This credit is disabled	Credit 1.1 must be achieved first.	
2.1 Electric Vehicle Infrastructure		0%
Score Contribution	This credit contributes 25% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	No	
2.2 Car Share Scheme		N/A  Scoped Out
n/a		
This credit was scoped out	n/a	
2.3 Motorbikes / Mopeds		0%
Score Contribution	This credit contributes 12.5% 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	

Waste Overall contribution 5.5%

	100%
--	------

1.1 - Construction Waste - Building Re-Use	100%
--	------

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

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

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

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

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

Urban Ecology Overall contribution 5.5%

		11%
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 : * 1m ² for each of the first 50 occupants * Additional 0.5m ² for each occupant between 51 and 250 * Additional 0.25m ² for each occupant above 251?	
Annotation	communal activity area of 250m2 is provided	
Question	Common space provided	
Apartment	315 m ²	
Output	Minimum Common Space Required	
Apartment	99 m ²	
2.1 Vegetation		0%
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	0 %	
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		0%
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	-	
3.1 Food Production - Residential		0%

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	-
Output	Min Food Production Area
Apartment	38 m²

Innovation Overall contribution 9.0%

	0%
--	----

1.1 Innovation		0% Disabled
Achieve a project score of 50% or above to enable this credit.		
This credit is disabled	Achieve a project score of 50% or above to enable this credit.	

Disclaimer

The Built Environment Sustainability Scorecard (BESS) has been provided for the purpose of information and communication. While we make every effort to ensure that material is accurate and up to date (except where denoted as 'archival'), this material does in no way constitute the provision of professional or specific advice. You should seek appropriate, independent, professional advice before acting on any of the areas covered by BESS.

The Municipal Association of Victoria (MAV) and CASBE (Council Alliance for a Sustainable Built Environment) member councils do not guarantee, and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of BESS, any material contained on this website or any linked sites