

ESD Design and Documentation Checklist

Better Quality Developments – Two dwellings on lot



Merri-bek
City Council

Instructions:

The 'ESD Design and Documentation Checklist' is designed to help demonstrate that the proposed development complies with the ESD requirements of the Better Quality Development (BQD) initiative. It has been created to support the Designer understand the Merri-bek ESD expectations. Every item on the checklist 'must' be demonstrated on the Architectural Plans.

Stage 1: Pre-application meeting

The first stage of the process is to apply for a pre-application meeting. This meeting will be between the applicant/designer and the Urban Planner. The Urban Planner will determine if the proposed development qualifies for the Better Quality Development stream. If the proposed development meets the planning requirements as outlined in the 'Better Quality Development Checklist', the Urban Planner will recommend the next stage of the process which is to obtain an ESD Letter of Support. A link will be provided where the amended plans and other documents can be uploaded.

Stage 2: Plans are reviewed against this ESD Design and Documentation Checklist

Amended plans and a Sustainable Design Assessment (SDA) including the BESS assessment, STORM Report and NatHERS reports will need to be uploaded along with a copy of the completed ESD Design and Documentation Checklist. These documents will be reviewed by the ESD Officer to ensure the proposed development plans meets the ESD expectations of the BQD initiative. If Plans and SDA satisfy the requirements outlined in the checklist, an "ESD Letter of Support" will be provided along with plans that are digitally stamped to verify the plans that have been assessed and supported.

Stage 3: Application for fast track approval

The assessed and stamped plans and SDA must then be uploaded onto the E-Services portal when lodging the development application under the Better Quality Development stream. The design or documentation must not be altered once it has been stamped. If alternatives plans are submitted, the development application will be referred to the standard process and will not qualify for the Better Quality Development stream.

The ESD Design and Documentation Checklist constitutes of two parts:

Part A: ESD Design Checklist

Sets clear expectation of the sustainable design requirements which is to be demonstrated in BESS. This section also provides tips for optimising the sustainability of the design. Refer to the sections in blue of this checklist.

Part B: ESD Documentation Checklist

Checklist of items that must be demonstrated on the architectural plans, elevations, material schedule, roof plan, water sensitive urban design plan and the NatHERS reports. Refer to the sections in light grey of this checklist.

DISCLAIMER:

Page 1 – Version 3 (30/10/2023)

This is a pre-consultation draft checklist, valid for October and November 2023. This checklist will likely change.

Stormwater Management

Stormwater Treatment Measures

- ☑ WSUD Plan has been included as part of the architectural plans with the roof plan as a base

Tips for optimising the STORM Rating

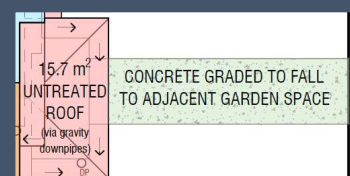
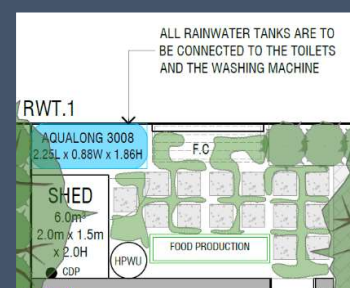
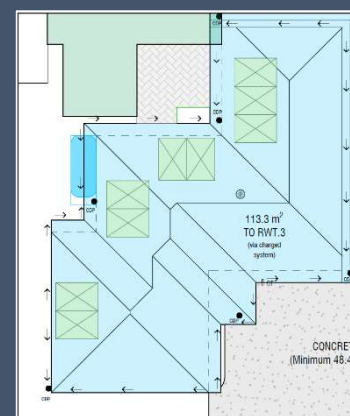
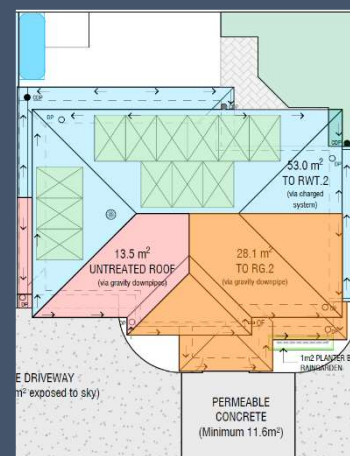
- Maximise the roof catchment area directed to a rainwater tank by using multiple downpipes and charged pipes. Ensure charged pipes do not go under building slabs.
- Increase the rainwater tank capacity above the minimum 2,000 litre tank and ensure the rainwater tank reliability is a minimum of 80%.
- Increase the reuse of the collected stormwater by connecting the tanks to the washing machines in the laundry. This will allow the consideration of an additional bedroom in the STORM calculator.
- Reduce the amount of concrete surfaces within the site. Small areas such as a pedestrian footpath, stairs, or concrete stepping pads do not count as hard surfaces and can be considered as permeable. This must be documented clearly on the WSUD Plan. They are to be graded away from the building and away from title boundaries or neighbouring properties.
- Introduce above ground planter box style raingardens within the front setback of the development or within common area. Charged pipes directed to an above ground raingarden is acceptable, however ensure the downpipe is a PVC pipe to avoid leakage from the pipe junctions.

The following stormwater treatment methods **are not accepted**:

- Proprietary systems
- Inground raingardens, buffer strips, infiltration sand and swale drains
- Planter box raingardens that are in secluded private open spaces
- Underground rainwater tank within 'tree canopy zone'
- Trafficable terrace or balcony catchment are not permitted to be directed to rainwater tank if the tank is connected to a washing machine.
- Charged pipes under slabs, including garages created because of:
 - Boundary to boundary construction
 - Varying gutter heights along walls on the boundary

Show on Roof Plan

- ☐ Eaves, ridges, valleys, hips, parapets, party walls, box gutter locations, and arrow the direction of water flow.
- ☐ Downpipe locations shown with consideration to best practice:
 - No more than 12 metres apart
 - Ideally within 1.2 metres of a valley
 - At the end of every box gutter
 - Avoiding clashing with windows and shading devices.
- ☐ Rainwater tank locations
- ☐ Raingarden location/s



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Show on WSUD Plan

WSUD Plan showing:

- ☐ Roof catchment area identified by various hatching or shades
- ☐ Description of treatment method and treatment area in sqm
- ☐ Type of downpipe (i.e., charged or gravity downpipe)
- ☐ Treatment method for hard surfaces including areas shown in sqm (i.e., concrete, permeable concrete, permeable paving, etc.)

WSUD Treatment Method Legend including:

- ☐ Rainwater tank treatment capacity as per the STORM Report
- ☐ Details of where the rainwater tank is connected to (i.e., toilets, irrigation, washing machine)
- ☐ Raingarden size and dimensions
- ☐ Permeable paving annotation stating, "Permeable paving graded towards an engineer designed detention system or adjoining landscaping to ensure overflow is not directed towards building or neighbouring property."
- ☐ Annotation that stairs or footpath do not require treatment, if untreated footpath is proposed

Stormwater – Rainwater Tanks

- ☒ Mandatory NCC requirements for Water Efficiency requires each dwelling to be provided with a rainwater tank that:
 - o Has a storage capacity of at least 2,000 litres
 - o Has a roof catchment area of at least 50 square metres, and
 - o Is connected to all internal toilets.
- ☒ On-site detention within rainwater tank accepted provided that:
 - o Storage capacity is in addition to the stormwater treatment capacity shown in STORM
 - o Tanks shown on the plans must be sized for the stormwater treatment in STORM and the additional on-site detention capacity
- ☒ STORM 'Tank Water Supply Reliability' is a minimum of 80%

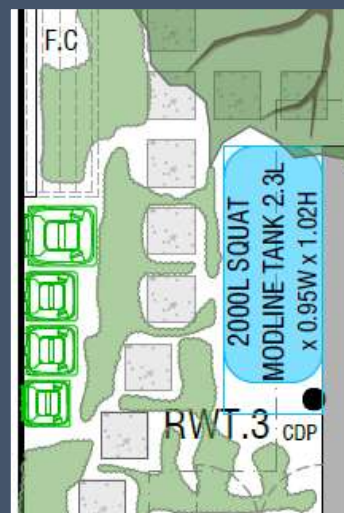
Show on Floor Plans

- ☐ Rainwater tank drawn to scale. Ensure a minimum distance of 900mm is provided between the tank and a side boundary fence.
- ☐ Annotation of the tank size (L x W x H) and capacity.
- ☐ Annotation of where the tanks will be connected to (i.e., toilets, irrigation and washing machine)
- ☐ If rainwater tanks are connected to washing machine, annotate: "The rainwater tank to be connected to toilets and washing machines. Ensure gutter guards, first flush diverters and filters are installed to the rainwater tank."
- ☐ If an in-ground rainwater tank is proposed, ensure it is:
 - o Not located within the 'tree canopy zone'
 - o Dimensioned (L x W x H) and drawn to scale

Show on Elevations

- ☐ Show rainwater tank location if its adjacent to a window

WSUD LEGEND/TREATMENT METHOD	
RWT	RAIN WATER TANKS 2000 LITRES SQUAT MODLINE 2000 LITRE SQUAT MODLINE 2000mm x 950mm x 1.02m (LxWxH) 2000mm x 950mm x 1.02m (LxWxH) RAIN WATER TANKS ARE TO BE USED ONLY FOR RISE WITHIN THE DWELLINGS AND ARE COMPLETELY INDEPENDENT OF ANY DETENTION REQUIREMENTS, THROUGH THE L.P.O.D. PROCESS.
	TREATED ROOF AREA TO RAIN WATER TANKS TOTAL ROOF CATCHMENT TO TANKS IS 234.7m ² • DWELLING 1 CATCHMENT OF 88.4 m ² TO RWT 1 • DWELLING 2 CATCHMENT OF 53.0 m ² TO RWT 2 • DWELLING 3 CATCHMENT OF 113.3 m ² TO RWT 3 METHOD OF DISCHARGE: CHARGED SYSTEM CONNECTED TO: TOILETS WASHING MACHINE FOR EACH UNIT IRRIGATION FOR GARDENS DEGS AS FOLLOWS: RWTS CONNECTED TO 15.0m ² OF GARDEN DEGS RWTS CONNECTED TO 10.0m ² OF GARDEN DEGS RWTS CONNECTED TO 14.0m ² OF GARDEN DEGS ADDITIONAL NOTES: OVERFLOW TO BE CONNECTED TO L.P.O.D.
	RG 1000mm ABOVE GROUND PLANTER BOX RAINGARDEN TREATED ROOF AREA TO RAINGARDEN TOTAL CATCHMENT AREA 62.7m ² DWELLING 1 CATCHMENT OF 34.6m ² TO DISCHARGE THROUGH RG 1 DWELLING 2 CATCHMENT OF 28.1m ² TO DISCHARGE THROUGH RG 2 METHOD OF DISCHARGE: GRAVITY FFD TREATMENT AREA: PLANTER BOX RAINGARDEN 1.0m ² ABOVE GROUND 1000mm RAINGARDEN 2000mm x 500mm x 100mm (LxWxH) ADDITIONAL NOTES: DETRACK MINIMUM 300mm FROM BUILDING BOUNDARY OVERFLOW TO BE CONNECTED TO L.P.O.D.
	UNTREATED ROOF AREA - 29.2m² DWELLING 1 CATCHMENT OF 10.2m ² DWELLING 2 CATCHMENT OF 13.5m ² METHOD OF DISCHARGE: GRAVITY FFD TO L.P.O.D. THROUGH RETENTION SYSTEM
	UNTREATED DRIVEWAY/PAVING TOTAL CATCHMENT AREA IS 93.5 m ²
	PERMEABLE CONCRETE DRIVEWAY MINIMUM TOTAL CATCHMENT AREA IS 53.5 m ² EXCESS OVERFLOW ON PERMEABLE PAVING TO BE DIRECTED TO ENGINEER DESIGNED DETENTION SYSTEM WITHIN THE DRIVEWAY AND A SURFACE PIPE WILL CONNECT THE DETENTION SYSTEM TO THE LEGAL POINT OF DISCHARGE.
	PERMEABLE PAVING SUCH AS BRICK PAVING (REFER TO DETAIL)
	HARD SURFACE DECKING, PAVING, STAIRS OR PEDESTRIAN FOOTPATHS TO FILL TO ADJACENT PERMEABLE AREA WHICH HAS NOT BEEN INCLUDED IN THE STORM CALCULATIONS
	AREA TO BE IRRIGATED BY RAINWATER TANK
ROOF SYMBOLS ● CDP CHARGED DOWNPIPE DISCHARGING TO RAINWATER TANK ○ GDF GRAVITY DOWNPIPE DISCHARGING TO RAINGARDEN OR L.P.O.D. — GUTTER TO GUTTER WITH 1.0m OF VALLEY — DOWNPIPE CONNECTION TO RAINGARDEN — DIRECTION OF FLOW WITHIN GUTTERS — VENTILATION DRAFFT (S.E. WORKED) SOLAR PANELS (340 WATT CAPACITY) WITH MULTI-STRING INVERTER 1050x1700mm (1570mm as shown on plans) to reflect due to 22.5° angle (not flat)	



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Stormwater – Raingardens

- ✓ Must be above ground planter box raingardens
- ✓ Must be a minimum size of 1 square metre
- ✓ Size of raingarden is to be equal to 2-4% of the roof catchment area (i.e., 1 square metre raingarden treats 25-50 square metres of roof catchment)
- ✓ To be located at least 300mm away from a building and title boundary
- ✓ Not located in the SPOS
- ✓ Charged pipes may be directed to an above-ground raingarden
- ✓ Charged pipes are to be PVC downpipes
- ✓ Sectional Detail of Planter-box Raingarden is to be provided in the WSUD Plan and the Landscape Plan.

Show on Floor Plans

- ☐ Location of raingarden shown on
 - o Ground Floor Plan
 - o WSUD Plan
 - o Landscape Plan
- ☐ Size of raingarden (L x W x H)
- ☐ Distance from building or boundary dimensioned
- ☐ Annotation of which downpipes are directed to a raingarden

Show on Elevations

- ☐ Location, width and height of planter-box raingarden if its located adjacent to a window

Show on Raingarden Detail

- ☐ Raingarden details to be provided in accordance with [WSUD Treatment for Developers – standard drawings \(PDF\)](#)
- ☐ Raingarden Maintenance Schedule to be provided. Refer to Section 2 of [Melbourne Water WSUD Maintenance Guidelines](#).

Stormwater – Permeable Paving

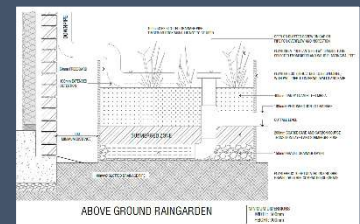
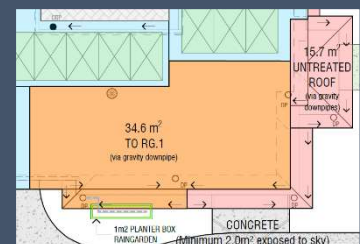
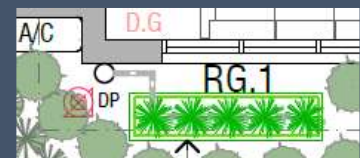
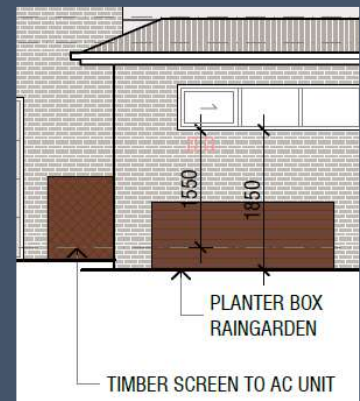
- ✓ Mandatory within 'tree canopy zone'. Not recommended within 1 metre of building footing

Show on Floor Plans

- ☐ Permeable paving area show on all plans annotated in square meters
- ☐ Hatching shown on the Floor Plans, WSUD, and the Landscape Plan

Show on Permeable Paving Detail

- ☐ Sectional Detail in accordance with [Merri-bek Council Tech Notes for Permeable Paving C120.09](#)
- ☐ Permeable Paving Maintenance Schedule in accordance with Section 5 of the [Melbourne Water WSUD Maintenance Guidelines](#).



Melbourne Water STORM Rating Report						
Project Name:	STORM					
Location:	MORRELL/AND					
Address:	MORRELL/AND					
Project No:	3044					
Client:	MORRELL/AND					
Designation:	Residential - MORRELL					
Equipment Size (m²):	600.00					
STORM Rating No:	100					
Description	Impervious Area (m²)	Treatment Type	Treatment Absorbance (0.1-1.0)	Capacity Number Of Rainwater	Treatment %	Peak Storm Runoff Reduction (%)
Unit 1 to Unit 1	68.40	Rainwater Tank	3,000.00	4	178.00	62.88
Unit 2 to Unit 2	52.00	Rainwater Tank	3,000.00	3	178.00	62.88
Unit 3 to Unit 3	112.00	Rainwater Tank	3,000.00	5	178.00	62.88
Unit 4 to Unit 4	34.60	Rainwater Tank	3,000.00	1	178.00	62.88
Unit 5 to Unit 5	28.10	Rainwater Tank	3,000.00	1	178.00	62.88
Unit 6 to Unit 6	16.10	None	0.00	0	0.00	0.00
Unit 7 to Unit 7	13.10	None	0.00	0	0.00	0.00
Unit 8 to Unit 8	13.10	None	0.00	0	0.00	0.00
Unit 9 to Unit 9	13.10	None	0.00	0	0.00	0.00
Unit 10 to Unit 10	13.10	None	0.00	0	0.00	0.00

Energy

The Energy Category in BESS focuses on energy supply, thermal performance, and energy efficiency. Each area has been broken down with their specific expectations.

Energy - Energy Supply

- ☒ Solar photovoltaic (PV) system
 - o Minimum 3kW for 2 bedrooms
 - o Minimum 4kW for 3 bedrooms
 - o Minimum 5kW for 4+ bedrooms
- ☒ Refer to the Merri-bek Zero Carbon Development Guidelines “[Solar Photovoltaic Systems](#)” document.
- ☒ Ensure the roof form is simple with minimal hips and valleys to accommodate the solar panels.
- ☒ Ensure the system size, orientation and inclination has been accurately represented in the BESS Report.
- ☒ Specify an ‘All-Electric’ fuel type. Not gas to be used on site.

Show on Floor Plans

- ☐ ESD Summary table specifies fuel type

Show on Elevations

- ☐ Location of solar PV panels

Show on Roof Plan

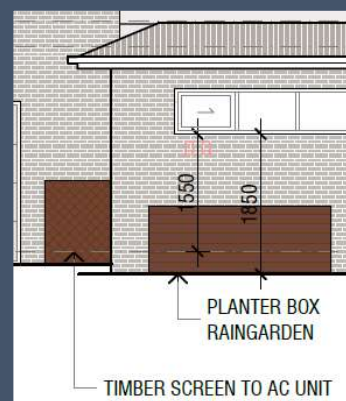
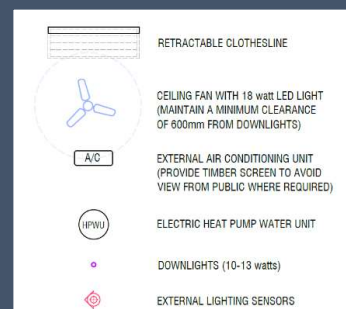
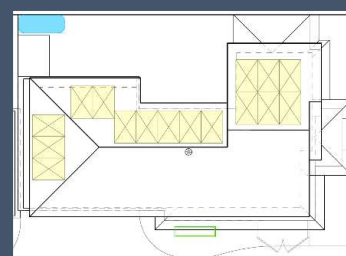
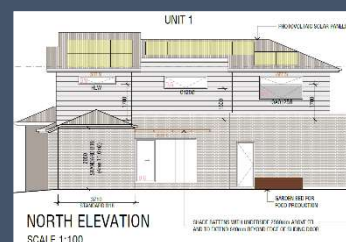
- ☐ Location of PV panels
- ☐ PV panels orientated north, followed by west and then east
- ☐ Size of PV panels shown (approximately 1100mm x 1700mm)
- ☐ Correct number of panels (approximately 340 watts per panels)

Energy – Energy Efficiency

- ☒ Reserve cycle heating and cooling heat pump air conditioning with a minimum of 4-star efficiency
- ☒ Electric heat pump hot water system or an instantaneous hot water system. Ensure a minimum width of 900mm is provided between the tank and title boundary, if applicable.
- ☒ Provide outdoor clotheslines
- ☒ External lighting controlled by motion detectors
- ☒ Internal lighting to achieve a maximum illumination power density of 4 watts per square meter.

Show on Floor Plans

- ☐ ESD Summary table to specify the energy efficiency of the equipment
- ☐ Location of the external air-conditioning condenser shown on the Ground Floor Plan to demonstrate accessibility around the condensing unit. If located in an area visible by the street, ensure it is screened from public view.
- ☐ Accurate size and location of hot water system if located within the side boundary setback
- ☐ Clotheslines drawn with accurate size and location to receive winter sunlight and located in an area easily accessible from the laundry



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Indoor Environmental Quality (IEQ)

Achieving a high score in BESS for IEQ will help improve the NatHERS rating and Whole of Home requirements.

Thermal Comfort

- ☑ Double glazing required to all habitable room windows.

Design Tips

- Reduce the number and / or size of west facing habitable room windows
- Provide large north facing windows
- Avoid west facing skylights

Show the following

- ☐ Double glazing 'DG' annotated to each habitable room window, sliding door and skylight on:
 - Floor Plans
 - Elevations
 - NatHERS Reports

External Window Shading

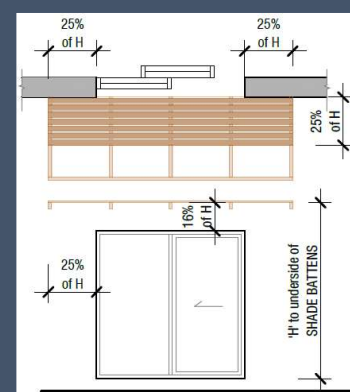
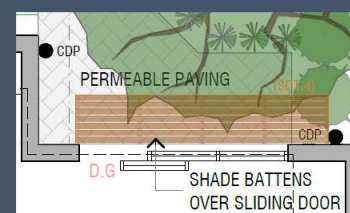
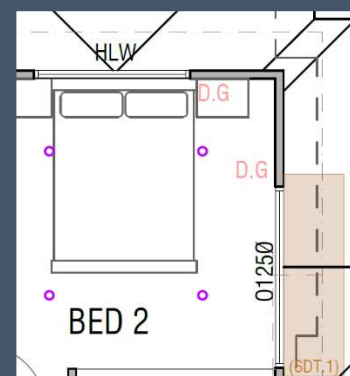
- ☑ Fixed horizontal external shading to all north facing habitable room windows and sliding doors.
- ☑ Adjustable shading devices are encouraged where a north facing fixed shading device would encroach within 1 metre of the title boundary
- ☑ External adjustable shading devices to all east, west, north-east, north-west and south-west facing habitable room windows and glazed door.

Show on Floor Plans and Elevations

- ☐ For all north facing habitable room windows:
 - Draw and label fixed, external, horizontal shading such as eaves, pergola or an awning.
 - Specify the depth of shading device to be equal to 25 per cent of the distance between the underside of the shading device and the sill height of the window.
 - Ensure the device extends horizontally to both sides of the window or glazed door by a distance equal to the depth.
- ☐ For all east, west, north-east, north-west and south-west facing habitable room windows:
 - Draw and label adjustable shading devices (annotated with 'ASD') to all applicable windows on the floor plans and elevations.
 - Ensure device is operable from within the dwelling by remote control, switch or a manual crank.
 - Ensure window sash opening style allows for openability while the shading device is operational.
 - Ensure device fits between the head height and the underside of the eave.

Show on Elevations

- ☐ Fixed and adjustable shading devices as described above.
- ☐ Sectional diagram of the external, fixed, horizontal shading device dimensioning the specific depth and width.
- ☐ Sectional diagram of the adjustable shading device.



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Daylighting

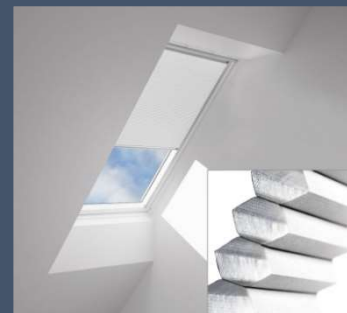
- ☒ Provide a high level of daylighting amenity and energy efficiency

Show on Floor Plans

- ☐ Provide skylights to non-habitable room windows such as bathrooms, stairwells, etc. where possible.

Show on NatHERS Report

- ☐ Provide double glazed skylights with in-built shading and operability to habitable rooms as required.



Water Efficiency

Water

- ☒ Water fixture, fittings and connections meet the minimum requirements:
 - Shower 4 WELS rating
 - Kitchen taps 5 WELS rating
 - Bathroom tap 6 WELS rating
 - Dishwashers 4 WELS rating
 - Toilets 4 WELS rating
- ☒ Rainwater tanks connected to toilets

Show on Floor Plans

- ☐ ESD Summary table provided on the plans specifying water efficiency.

WATER EFFICIENCY

RAINWATER TANKS

DWELLING ARE TO BE PROVIDED WITH EITHER A 2,000L OR 4,000L RAINWATER TANKS ARE TO BE CONNECTED TO;

- SA
- W
- IR

WATER FIXTURES, FITTINGS AND CONNECTION

SHOWERHEADS	MINIMUM 4 STAR
BATH	MEDIUM SIZED C
KITCHEN TAPS	MINIMUM 5 STAR
BATHROOM TAPS	MINIMUM 5 STAR
DISHWASHERS	DEFAULT (3 STAR
TOILETS	MINIMUM 4 STAR
WASHING MACHINES	MINIMUM 4 STAR
WATER EFFICIENT LANDSCAPING	DRIP IRRIGATION AND RAIN SENS

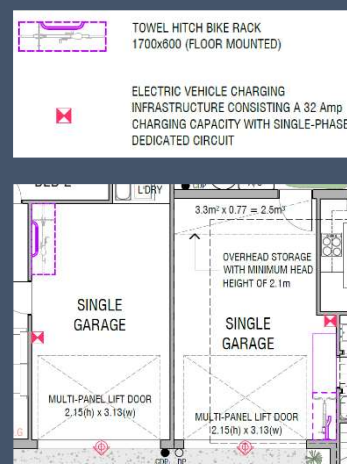
Transport

Transport

- ☒ Provide secure, undercover and easily accessible bicycle storage areas
- ☒ Provide electric vehicle infrastructure and cabling
- ☒ Refer to the Merri-bek Zero Carbon Development Guideline "[Electric Vehicle Infrastructure](#)" document.

Show on Floor Plans

- ☐ Where a shared garage, carport or an open parking space is provided, a towel rail bike rack is shown. Space allocation of 1.8m in length, 600mm in width and a minimum pedestrian aisle width of 900mm.
- ☐ Location of EV charging infrastructure.
- ☐ Annotation stating: "Level 2 (Mode 3) 32 Amp car charging infrastructure to each garage".



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Urban Heat Island Effect

- ☒ Dark materials and finishes to be limited to reduce Urban Heat Island Effect (UHIE).
 - Solar absorptance (SA) levels are used for roof and brick colours
 - Light reflectance values (LRV) are used for paint colours ranging from zero (absolute black, absorbing all light and heat) to 100% (pure white, reflecting all light).
 - West facing walls should always be light to medium, if possible.

Show on Material Schedule

- ☐ Specify solar absorptance levels no darker than 'Medium', or a solar absorptance level that is equal to less than 0.60 for the:
 - Roof colour, and
 - Brick colour.
- ☐ Specify light reflectance value (LRV) levels greater than 40% for:
 - Walls, cladding, paint, and
 - Driveways.

Energy - NatHERS Thermal Performance Assessment

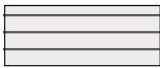
- ☒ NatHERS 'Certificate Preview' demonstrating 7-star rating for each dwelling has been included in the Sustainable Design Assessment.
- ☒ NatHERS heating and cooling loads have been specified in the BESS

Show on Floor Plans

- ☐ ESD Summary Table to specify '7-star NatHERS' rating.

Specified in NatHERS Certificate Preview

- ☐ Double glazing for all habitable room windows
- ☐ Window opening percentages depict opening style and 'opening restrictions' as per the elevations
- ☐ Adjustable shading devices for applicable windows
- ☐ Wall cladding and roof materials consistent with Material Schedule
- ☐ Wall colour solar absorptance as per Material Schedule
- ☐ Wall insulation to be a maximum of R2.7 if within 90mm stud wall
- ☐ Ceilings with a pitched roof to show a R2.5 perimeter insulation
- ☐ Roof colour solar absorptance as per Material Schedule
- ☐ Skylights and roof window as per Roof Plan
- ☐ Exhaust fans and penetrations

COLOUR SAMPLE	HATCH REFERENCE
	
	
	
	
	



ESD Letter of Support and Digital Stamp:

At the end of the pre-application ESD assessment process, plans demonstrating the ESD requirements will be digitally stamped and issued back to the applicant along with a Letter of Support. Below is an example of the stamped plans.

Merri-bek Guidance Plans:

For the purposes of providing guidance on what our expectations are for high-quality documentation is, refer to the [Merri-bek Guidance Plans](#). The Merri-bek Guidance Plan are an example set of plans for a typical three-unit development in Merri-bek City Council. It provides a graphical description of how to demonstrates the environmentally sustainable design initiatives of a BESS Assessment.

Acronyms:

ASD	Adjustable Shading Device	PV	Photovoltaics
BESS	Built Environment Sustainability Scorecard	R-value	Thermal Resistance Value
DG	Double Glazing	SA	Solar Absorptance
ESD	Environmental Sustainable Development	SDA	Sustainable Design Assessment
EV	Electric Vehicle	SDAPP	Sustainable Design Assessment in the Planning Process
FSD	Fixed Shading Device	SPOS	Secluded Private Open Space
IEQ	Indoor Environment Quality	STORM	Stormwater assessment tool
LRV	Light Reflectance Value	UHIE	Urban Heat Island Effect
NatHERS	Nationwide House Energy Rating Scheme	WELS	Water Efficiency Labelling and Standards
NCC	National Construction Code	WSUD	Water Sensitive Urban Design
POS	Private Open Space		

Disclaimer:

Merri-bek City Council is committed to achieving best practice outcomes in Environmentally Sustainable Development (ESD), from design through to construction and operation. We appreciate design is a complex process with many moving parts and the best way to achieve both planning and ESD outcomes is to be transparent with our expectations on what needs to be submitted to gain Officers support for the ESD Letter of Support and to help guide an application to a planning approval under the Better Quality Development stream.

This Checklist is not to be relied upon as construction documentation or detailed design advice. When applying this checklist to a planning application, it should be adapted to site specific circumstances. No warranty is provided on the accuracy of this material or any omissions from the material. Merri-bek City Council accepts no liability for any loss or damages incurred in connection with this Checklist.

DISCLAIMER:

Policy Basis and Further Resources:

This Checklist responds to the following clauses of the Merri-bek Planning Scheme:

Clause 11.01.1S	Settlement – Demonstrate strategies that contribute to net zero greenhouse gas emissions and integrated water resource management.
Clause 12.01-1L	Biodiversity in Merri-bek
Clause 13.01-1S	Natural hazards and climate change
Clause 15.01-2S	Building Design – Improves the energy performance of buildings through siting and design by encouraging passive design, specifying on-site renewable energy generation and the use of low embodied materials.
Clause 15.01-2L-04	Energy Efficiency in Merri-bek – Ensuring development maximises passive energy efficiency and creates quality living and working environments.
Clause 15.01-2L-05	Environmentally Sustainable Development – Achieving best practice in environmentally sustainable development from the design stage through to construction and operation.

This Checklist also responds to the following local, Victoria government and federal government initiatives:

[NCC 2022 NatHERS Heating and Cooling Load Limits](#)

[NCC 2022 Whole-Of-Home Efficiency Factors](#)

[NCC 2022 Livable Housing Design](#)

[Victorian Gas Substitution Roadmap](#)

[Elevating ESD Targets Planning Policy Amendment \(CASBE\)](#)

[Sustainable Design Assessment in the Planning Process](#) (SDAPP)

- [SDAPP Explained](#)
- [ESD Tools](#)
- [1.0 Indoor Environment Quality](#)
- [1.1 Daylighting](#)
- [1.2 Natural Ventilation](#)
- [2.0 Energy Efficiency](#)
- [2.1 Sunshading](#)
- [2.2 Building Envelope Performance](#)
- [2.3 Zero Carbon Development](#)
- [3.0 Water Efficiency](#)
- [4.0 Stormwater Management](#)
- [4.1 Site Permeability](#)
- [5.0 Building Material](#)
- [6.0 Transport](#)
- [6.1 Electric Vehicles](#)
- [7.0 Waste Management](#)
- [8.0 Urban Ecology](#)
- [8.1 Green Roof, Walls and Facades](#)
- [9.0 Innovation](#)
- [9.1 Melbourne's Climate](#)
- [10.0 Construction and Building Management](#)

DISCLAIMER:

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This is a pre-consultation draft checklist, valid for October and November 2023. This checklist will likely change.