

# ENVIRONMENTALLY SUSTAINABLE DESIGN (ESD)

## Overview

In order to meet the Environmentally Sustainable Design requirements of the Stonnington Planning Scheme, an application to develop 2 to 9 dwellings must be supported by a Sustainable Design Assessment (SDA). These guidelines are designed to assist in addressing the Environmentally Sustainable Development (ESD) Policy at Clause 15.02-1L-02 and Water Sensitive Urban Design (WSUD) Policy at Clause 19.03-3L-02.

## Templates and resources

The following resources may assist you in preparing an SDA:

- An SDA template is available on Stonnington's website free for applicants to use at: <https://www.stonnington.vic.gov.au/Planning-and-building/Planning/Sustainability-in-your-planning-application#section-3>
- A Built Environment Sustainability Scorecard (BESS) assessment should be included as part of the SDA. These are freely accessible online at: <https://bess.net.au/>.
- Further resources, including the Sustainable Design Assessment in the Planning Process (SDAPP) factsheets, can be found on Councils website at: <https://www.stonnington.vic.gov.au/Planning-and-building/Planning/Sustainability-in-your-planning-application#section-4>

## Preparing a Sustainable Design Assessment (SDA)

There are ten key sustainable building categories. The section below recommends initiatives that applicants are encouraged to implement for each of these categories. This list is not exhaustive and there may be other ESD measures you may wish to commit to.

### Energy

- Install electric heat pump hot water systems, induction cooktops and reverse cycle heating and cooling systems (energy efficiency of 3 to 4 Stars).
- Provide preliminary NatHERS (Nationwide House Energy Rating Scheme) ratings for all thermally unique dwellings. Proposals should be designed to achieve a minimum average NatHERS rating of 6.5 stars to meet the requirements of NCC 2022, which comes into effect on 1 October 2023. Refer to: <https://www.nathers.gov.au/> for further details.
- Use double glazing to all habitable room windows and glazed doors to each individual unit.
- Minimise the use of skylights and roof windows to improve the building envelope's thermal performance.
- Zone heated and cooled rooms with doors and avoid open stairwells to reduce energy use.
- Install external washing lines in the private open spaces of each dwelling.
- Install solar Photovoltaic (PV) systems to each dwelling. The following solar panels are recommended – minimum 3kW solar PV system to each 1 and 2 bed dwelling, 4 to 5kW for 3 beds and more. Refer Your Home, Photovoltaic Systems for further details: <https://www.yourhome.gov.au/energy/photovoltaic-systems>

### IEQ

#### IEQ Daylight

- Consider floor plan layouts and the location of windows and doors to maximise access to north sun for habitable rooms.
- All habitable rooms should have a window.
- Consider the impact of excessive glazing to the west. Balance daylight requirements and heat gain in summer (e.g. by installing external operable blinds).
- Maximise the Visible Light Transmittance (VLT) of glazing. Glazing with a minimum VLT of 60% or greater is preferred.

#### IEQ Shading

- Install fixed, external, horizontal shading to north facing windows and glazed doors to habitable rooms. As a rule of thumb, a fixed overhang (such as an eave) width should measure 25% of the height from the windowsill to the bottom of the shading device. Refer to the Energy Smart Housing Manual, Sustainability Victoria p.41 for further details: <https://assets.sustainability.vic.gov.au/susvic/Guide-Energy-Smart-Housing-Manual.pdf>. Extend shading to the sides by the same depth.

- Provide external operable sun shading devices to east and west facing habitable room windows and glazed doors. Note that eastern facades are exposed to solar heat gains just as much as western facades, only we perceive it as less as outside air temperatures are cooler in the morning.
- Ensure windows with external adjustable shading can open when using the shading device.

#### IEQ Ventilation

- Maximise operable windows including to bathrooms, studies, hallways, and stairwells.
- Provide a minimum of two operable windows or doors in all rooms for passive ventilation.
- Maximise window opening types that provide greater ventilation, such as casement, double-hung and sliding windows. Refer to Your Home, Passive Cooling for further details: <https://www.yourhome.gov.au/passive-design/passive-cooling>
- Avoid awning windows where possible as they allow for the lowest level of ventilation.
- Install ceiling fans where there is insufficient natural ventilation. Typically, the air flow created by a ceiling fan provides a similar level of comfort as reducing the temperature by around 3°C. Refer to Your Home Passive-cooling for further details: <https://www.yourhome.gov.au/passive-design/passive-cooling>

#### **Water**

- Use Water Efficiency Labelling and Standards (WELS) rated fixtures within one star of the best available: [www.waterrating.gov.au](http://www.waterrating.gov.au)
- Commit to minimum WELS ratings as follows:
  - Showers: 3 WELS Stars
  - Toilets (WC): 4 WELS Stars
  - Taps: 5/6 WELS Stars
  - Dishwashers: 4 WELS Stars
- To claim BESS credit '3.1 Water Efficient Landscaping,' the water efficient landscape should not require water to survive. The BESS tool notes state: "A water efficient garden should have no irrigation system and not require watering after an initial period when plants are getting established." Therefore, confirmation is required from the project landscape Architect that the proposed planting meets the BESS criteria to claim these points. Alternatively, the landscape irrigation system is to be connected to the rainwater tank, and it is to be noted on the plans that no potable water is to be used for irrigation.

#### **Stormwater**

- Provide a STORM Report (available free at: <https://storm.melbournewater.com.au/Default.aspx>) and achieve a pass score of **100%** or greater.
- Achieve a minimum 80% rainwater tank reliability in STORM.
- Rainwater tanks connected to all toilet(s) of each dwelling are preferred. If additional treatment is required, permeable paving and/or raingardens may be used.

- Council does not support reuse of collated water for irrigation only, as it constitutes a seasonal demand. This means that tanks will overflow to stormwater in times of low demand, such as in Winter and Spring. Tanks must be connected to a viable re-use option, such as internal toilet-flushing.
- Do not use WSUD proprietary devices - also called Stormwater Quality Improvement Devices (SQIDs) - as they are generally not accepted at Stonnington.
- Raingardens are to be lined with a waterproof liner and should be located away from building footings.
- Provide dimensions, plant types, maintenance schedules, technical cross section diagrams etc. for the water tanks, permeable paving, and raingardens.
- A brief statement outlining construction measures to prevent litter, sediments and pollution entering the stormwater system is to be provided. The statement should include the types of measures required to be implemented on site, such as adoption of 'Keeping our stormwater clean' guide by Melbourne Water and typical measures suggested: [https://www.clearwatervic.com.au/user-data/resource-files/Keeping\\_Our\\_Stormwater\\_Clean\\_A\\_Builders\\_Guide\[1\].pdf](https://www.clearwatervic.com.au/user-data/resource-files/Keeping_Our_Stormwater_Clean_A_Builders_Guide[1].pdf)
- A brief statement outlining operational and maintenance measures to check the effective operation of all systems is to be provided. Refer to Stonnington's Statutory Planning Guides – Water Sensitive Urban Design (WSUD) for examples of Maintenance Checklists of rainwater tanks, permeable paving and raingardens.

#### **Transport**

##### Electric Vehicle (EV) Infrastructure

- The following is recommended:
  - Infrastructure and cabling (with or without the charger unit) to each garage or carport that can support Level 2 (Mode 3) 32 Amp EV car charging.
  - Load management systems that ensure that: EV charging occurs outside of peak electricity demand hours.

##### Bicycle Parking

- Provide a secure bike park for each dwelling. Garages and carports are acceptable if there are no obstructions or other uses that limit access for riders. Parked bikes cannot block bin access from the private open space to the collection point. Over bonnet bike racks are not acceptable due to access difficulties when a car is parked in the space.

## Waste

- Adopt a recycling target of at least 80% for all demolition and construction waste (by mass).
- Provide recycling facilities that are at least as convenient for building occupants as general waste facilities.
- Provide on-site management of food and garden waste, or Food Organic and Garden Organic (FOGO) waste collection. Stonnington has an opt in FOGO waste collection:  
<https://www.stonnington.vic.gov.au/Services/Waste-and-recycling/Opt-in-to-food-and-green-waste>

## Urban Ecology

- Maximise vegetation to entrances, driveways, walls, between garages etc. and maintain existing trees and plants.
- Minimise the level of dark materials to limit the Urban Heat Island Effect (UHIE). Roofs colour are to be light to medium in colour with a Solar Reflective Index (SRI) of minimum 60 for roof pitches less than 15 degrees and SRI of 39 for roof pitches greater than 15 degrees. Driveways should have a SRI of minimum 39.

## Details to include on architectural plans:

The items listed below are intended as a guide for applicants of what should be included on the architectural plans. However, depending on your chosen ESD/WSUD commitments, the requirements may vary.

All architectural plans must ensure that ESD commitments are clearly drawn, labelled, and listed on the plans. If the ESD commitment cannot be shown, it must be included in a separate ESD table on the plans.

### Architectural Plans to include the following details:

Management	
<input type="checkbox"/>	Separate Utility Metres -A notation confirming the commitment that the utility services (electricity, water & gas if applicable) would be separately metered for all individual tenancies, individual dwellings and major common area uses.
Energy	
<input type="checkbox"/>	Heating and Colling - A notation confirming the type of system(s) and energy star rating.
<input type="checkbox"/>	Domestic Hot Water - A notation confirming the type of system(s) and energy star rating.
<input type="checkbox"/>	Solar Panels - The number of panels proposed to be detailed on the roof plan, including a notation confirming the total system capacity and angle of inclination (from the horizontal) they are to be installed at.
<input type="checkbox"/>	Carpark Ventilation - If mechanical ventilation is to be provided to the carpark area, a notation is to confirm that Carbon Monoxide (CO) sensor are to be installed.
<input type="checkbox"/>	Clothes drying facilities - If private outdoor clothes lines are to be provided, they are to be detailed/noted.
<input type="checkbox"/>	External Lighting - If external lighting is to be controlled by motion, time, or light sensors, a notation is to be included.
IEQ	
<input type="checkbox"/>	Daylight - The Visible Light Transmittance (VLT) of the glazing is to be noted on the plans (i.e., all glazing is to have a minimum Visible Light Transmittance (VLT) of 60%).
<input type="checkbox"/>	Double glazing - A notation confirming all habitable room windows and glazed doors are to be double glazed.
<input type="checkbox"/>	External shading - All external shading devices are to be clearly detailed, noted, and dimensioned on the plans and elevations.
<input type="checkbox"/>	External Shading - A detailed dimensioned section(s) is to be provide demonstrating their effectiveness from the spring equinox till the autumn equinox (21 September to 21 March).
<input type="checkbox"/>	Natural Ventilation - All openable windows are to be detailed/noted on the plans and elevations.
<input type="checkbox"/>	Natural Ventilation - Marked up plans detailing all breeze paths (refer to BESS Tool Notes, section 2.1 Effective Natural Ventilation for assessment criteria: <a href="https://bess.net.au/tool-notes/">https://bess.net.au/tool-notes/</a> )
Water	
<input type="checkbox"/>	Water Fixtures, Fittings and Connections – A notation confirming Water Efficiency Labelling and Standards (WELS) star rating of all the water fixtures, fittings, and appliances.
<input type="checkbox"/>	Water Efficient Landscaping - If proposed, a notation confirming that either there is no irrigation requirement, or the irrigation system is connected to rainwater tank only and no portable water (drinking/mains water) will be used for irrigation purposes.

<b>Stormwater</b>	
<input type="checkbox"/>	STORM Rating - A marked-up plan detailing all impervious and permeable areas entered as part of the STORM assessment.
<input type="checkbox"/>	Rainwater Tanks (RWT) - The RWT and its location are to be detailed, including a notation confirming its size and the number of toilets to be connected to it.
<input type="checkbox"/>	Rainwater Tanks (RWT) - A notation on the roof plan confirming the total catchment area (m <sup>2</sup> ) to drain to the RWT.
<input type="checkbox"/>	Other Stormwater Treatment Systems - If other treatment systems are used beyond a RWT (i.e., raingardens and or permeable Paving) these are to be detailed/noted on the plans and their associated total catchment area in (m <sup>2</sup> ).
<b>Transport</b>	
<input type="checkbox"/>	Elective Vehicle (EV) Infrastructure - The parking spaces nominated for electric vehicle charging and the type of charging infrastructure to be installed (i.e., Level 2 (Mode 3) 32 Amp EV car charging).
<input type="checkbox"/>	Bicycle Parking - All bicycle parking storage spaces are to be detailed/noted, including type of storage system rack that is to be adopted and set-out to be dimensioned, including clearance/area required for access to the racks. The overall number of spaces is to be notated, including the number dedicated for visitors.
<b>Waste</b>	
<input type="checkbox"/>	Convenience of recycling – Waste storage area to include bins and a notation confirming co-location of general waste and recycling bins.
<input type="checkbox"/>	Food and garden waste – If Food Organic and Garden Organic (FOGO) collection facilities are to be provided, they are to be detailed/noted.
<b>Urban Ecology</b>	
<input type="checkbox"/>	Vegetation - A marked-up plan detailing all vegetated areas, including their total area (m <sup>2</sup> ).
<input type="checkbox"/>	Urban Heat Island Effect - A notation confirming roofs colour are to be light to medium in colour with a Solar Absorptance (SA) equal to or less than 0.60, and that driveways are to have a Solar Reflective Index (SRI) higher than 0.40.
<input type="checkbox"/>	Private Open Space (POS) / balcony / courtyard - A notation confirming that a water supply (tap) is to be provided on balconies and POS if relevant.
<input type="checkbox"/>	Food production - If provided, this is to be detailed/noted on the plans.
<input type="checkbox"/>	Green roofs, walls and facades - If provided, this is to be detailed/noted on the plans.

*Stonnington wish to acknowledge the assistance of Merri-bek City Councils in compiling the information within this document.*

*The advice provided in this fact sheet is general in nature and provided on an informal basis. Further information regarding your proposal may be required as part of the application process and issues may arise when a full assessment is undertaken.*