



## ESD in the Planning Permit Application Process

Yarra City Council's planning permit application process includes Environmentally Sustainable Development (ESD) considerations. This is now supported by the ESD Local Policy Clause 22.17 of the Yarra Planning Scheme, entitled *Environmentally Sustainable Development*.

The Clause 22.17 requires all eligible applications to demonstrate best practice in ESD, supported by the Built Environment Sustainability Scorecard (BESS) web-based application tool, which is based on the Sustainable Design Assessment in the Planning Process (SDAPP) program.

As detailed in Clause 22.17, this application is a 'large' planning application as it meets the category *Non-residential 2. 1,000m<sup>2</sup> or greater of new floor area*.

## What is a Sustainable Management Plan (SMP)?

An SMP is a detailed sustainability assessment of a proposed design at the planning stage. An SMP demonstrates best practice in the 10 Key Sustainable Building Categories and;

- Provides a detailed assessment of the development. It may use relevant tools such as BESS and STORM or an alternative assessment approach to the satisfaction of the responsible authority; and
- Identifies achievable environmental performance outcomes having regard to the objectives of Clause 22.17 (as appropriate); and
- Demonstrates that the building has the design potential to achieve the relevant environmental performance outcomes, having regard to the site's opportunities and constraints; and
- Documents the means by which the performance outcomes can be achieved.

An SMP identifies beneficial, easy to implement, best practice initiatives. The nature of larger developments provides the opportunity for increased environmental benefits and the opportunity for major resource savings. Hence, greater rigour in investigation is justified. It may be necessary to engage a sustainability consultant to prepare an SMP.

## Assessment Process:

The applicant's town planning drawings provide the basis for Council's ESD assessment. Through the provided drawings and the SMP, Council requires the applicant to demonstrate best practice. The following comments are based on the review of the architectural drawings, prepared by Architectus (prepared 16<sup>th</sup> April 2020, and the accompanying SMP, prepared by Floth (also prepared 16<sup>th</sup> April 2020).



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## Assessment Summary:

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Responsible Planner:	Michelle King		
ESD Advisor:	Euan Williamson		
Date:	21.05.2020	Planning Application No:	PLN20/0006
Subject Site:	462-482 Swan Street, Richmond		
Site Area:	Approx. 4,660m <sup>2</sup>	Site Coverage:	100%
Project Description:	Thirteen storey office building with ground floor retail.		
Pre-application meeting(s):	None.		

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**The standard of the ESD is close to meeting Council's Environmental Sustainable Design (ESD) best practice standard.** Should a permit be issued, the following ESD commitments (1) and deficiencies (2) should be conditioned as part of a planning permit to ensure Council's ESD standards are fully met.

*Furthermore, it is recommended that all ESD commitments (1), deficiencies (2) and the outstanding information (3) are addressed in an updated SMP report and are clearly shown on Condition 1 drawings. ESD improvement opportunities (4) have been summarised as a recommendation to the applicant.*

### (1) Applicant ESD Commitments:

- Commitment to 5 Star Green Star certified rating with the Green Building Council of Australia.
- A MUSIC modelling report demonstrating best practice has been submitted that relies on runoff from approximately 2,879m<sup>2</sup> of roof connected to 90,000 litres of rainwater storage for toilet flushing.
- 10% improvement in NCC energy efficiency requirements for the whole building.
- A solar PV array to contribute to onsite electricity consumption.
- Energy efficient heating/cooling, hot water and lighting.
- High efficiency centrifugal chillers with a minimum COP of 5.8.
- Access to natural ventilation is limited, however, fresh air intake rates to exceed As 1668 standards by at least 50%.
- Water efficient fixtures and taps.

### (2) Application ESD Deficiencies:

- 10% improvement in energy efficiency (minimum), is the only clear commitment to an energy performance standard specified within the SMP. This standard just meets Council's best practice standard for thermal energy. Recommend that a large development like this demonstrates leadership with at least a minimum 20% improvement above NCC 2019 standards. Recommend that prior to commencement a completed JV3 energy report be submitted demonstrating the proposed energy performance standard.
- 282 bicycle parking spaces plus additional spaces for visitors. This falls short of our best practice standard for bicycle parking (10% of building users), which for 32,053m<sup>2</sup> NLA should be 320 bicycle spaces. Recommend increasing bicycle parking 320 spaces.
- Electric vehicle charging infrastructure is an option being considered. Recommend electric vehicle charging infrastructure for at least 5% of vehicle spaces is provided.

### (3) Outstanding Information:

- No specific information on expected daylight performance standards has been submitted. Recommend that a daylight report be prepared using daylight modelling or GBCA Hand Calculation method demonstrating that at least 30% of NLA exceed a 2% daylight factor standard. Lower levels are split with a north-south internal atrium which will assist bring light into lower office



levels, but the upper levels enclosing the atrium will reduce this potential. A glazing VLT of 45% could be improved to increase daylight levels, as could the increase of the atrium over a greater number of levels.

- There is little detail on the size and capacity of the proposed solar PV array. Please update the SMP with approximate size (kWp).
- The notation on plans shows a 70,000 rainwater tank, not 90,000 as required by the stormwater and WSUD reports. Please update the architectural plans to be consistent with the SMP.

#### (4) ESD Improvement Opportunities

- There are large areas of east, west and north facing glazing exposed to summer sun angles and high levels of summer solar heat gain. Recommend additional external shading systems on all east, west and north facing facades exposed to summer sun angles to reduce cooling loads and improve thermal comfort. *See comments on energy efficiency above.*
- Recommend mixed mode HVAC to enable access to natural ventilation and reduce energy consumption for heating and cooling.
- Recommend that all engineered timber products to have low/no formaldehyde content.
- Strongly recommend providing a system for organic waste and separate waste streams for glass and paper also.
- Consider a rooftop terrace garden as a shared space for users of the building.

#### Further Recommendations:

The applicant is encouraged to consider the inclusion of ESD recommendations, detailed in this referral report. Further guidance on how to meet individual planning conditions has been provided in reference to the individual categories. The applicant is also encouraged to seek further advice or clarification from Council on the individual project recommendations.

# 1. Indoor Environment Quality (IEQ)

## Objectives:

- to achieve a healthy indoor environment quality for the wellbeing of building occupants.
- to provide a naturally comfortable indoor environment will lower the need for building services, such as artificial lighting, mechanical ventilation and cooling and heating devices.

Issues	Applicant's Design Responses	Council Comments	CAR*
Natural Ventilation and Night Purging	Access to natural ventilation is limited. Fresh air intake rates to exceed As 1668 standards by at least 50%.	Recommend mixed mode HVAC.	1
Daylight & Solar Access	No specific information on expected daylight performance standards has been submitted.	Lower levels are split with a north-south internal atrium which will assist bring light into lower office levels, but the upper levels enclosing the atrium will reduce this potential. A glazing VLT of 45% could be improved to increase daylight levels, as could the increase of the atrium over a greater number of levels.  Recommend that a daylight report be prepared using daylight modelling or GBCA Hand Calculation method demonstrating that at least 30% of NLA exceed a 2% daylight factor standard.	3
External Views	External views from most office areas.	-	1
Hazardous Materials and VOC	All interior paints, adhesives, sealants and carpets will be low-VOC type	Recommend that all engineered timber products to have low/no formaldehyde content.	4
Thermal Comfort	Good thermal comfort is determined through a combination of good access to ventilation, balanced passive heat gains and high levels of insulation. The application proposes: - Poor natural ventilation - Some shading proposed - Average thermal efficiency standards.	Please refer to section on, <i>NCC Energy Efficiency Requirements Exceeded and Effective Shading</i>	2

## \* Council Assessment Ratings:

1 – Design Response is **SATISFACTORY**; 2 – Design Response is **NOT SATISFACTORY**  
3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

## References and useful information:

SDAPP Fact Sheet: [1. Indoor Environment Quality](#)

Good Environmental Choice Australia Standards [www.geca.org.au](http://www.geca.org.au)

Australian Green Procurement [www.greenprocurement.org](http://www.greenprocurement.org)

Residential Flat Design Code [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)

Your Home [www.yourhome.gov.au](http://www.yourhome.gov.au)

## 2. Energy Efficiency

### Objectives:

- to ensure the efficient use of energy
- to reduce total operating greenhouse emissions
- to reduce energy peak demand
- to minimize associated energy costs.

Issues	Applicant's Design Responses	Council Comments	CAR*
NCC Energy Efficiency Requirements Exceeded	10% improvement in energy efficiency (minimum), is the only clear commitment to an energy performance standard specified within the SMP.	This standard just meets Council's best practice standard for thermal energy performance. Recommend that a large development like this demonstrates leadership with at least a minimum 20% improvement above NCC 2019 standards. Recommend that prior to commencement a completed JV3 energy report be submitted demonstrating the proposed energy performance standard.	2
Hot Water System	Energy efficient gas hot water.	-	1
Peak Energy Demand	Peak demand reduced through various initiatives.	-	1
Effective Shading	There are large areas of east, west and north facing glazing exposed to summer sun angles and high levels of summer solar heat gain.	Recommend additional external shading systems on all east, west and north facing facades exposed to summer sun angles to reduce cooling loads and improve thermal comfort.	4
Efficient HVAC system	High efficiency centrifugal chillers with a minimum COP of 5.8	-	1
Efficient Lighting	Energy efficient LED lighting.	-	1
Electricity Generation	A solar PV array to contribute to onsite electricity consumption.	There is little detail on the size and capacity of the proposed solar PV array. Please update the SMP with approximate size (kWp).	3
Other	-	-	-

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### References and useful information:

SDAPP Fact Sheet: [2. Energy Efficiency](#)  
 House Energy Rating [www.makeyourhomegreen.vic.gov.au](http://www.makeyourhomegreen.vic.gov.au)  
 Building Code Australia [www.abcb.gov.au](http://www.abcb.gov.au)  
 Window Efficiency Rating Scheme (WERS) [www.wers.net](http://www.wers.net)  
 Minimum Energy Performance Standards (MEPS) [www.energyrating.gov.au](http://www.energyrating.gov.au)  
 Energy Efficiency [www.resourcesmart.vic.gov.au](http://www.resourcesmart.vic.gov.au)

### 3. Water Efficiency

#### Objectives:

- to ensure the efficient use of water
- to reduce total operating potable water use
- to encourage the collection and reuse of rainwater and stormwater
- to encourage the appropriate use of alternative water sources (e.g. grey water)
- to minimise associated water costs.

Issues	Applicant's Design Responses	Council Comments	CAR*
Minimising Amenity Water Demand	Water efficient taps and fittings throughout, including: <ul style="list-style-type: none"> <li>- 3 Star WELS showers</li> <li>- 4 Star WELS toilets</li> <li>- 6 Star WELS tapware</li> <li>- 6 Star WELS urinals</li> </ul>	-	1
Water for Toilet Flushing	A 90,000 litre rainwater tank connected to all toilets for flushing.	-	1
Water Meter	Separate water metering for all major common area uses, tenancies and dwellings.	-	1
Landscape Irrigation	Water efficient drip irrigation	-	1
Other	-	-	-

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#### References and useful information:

SDAPP Fact Sheet: [3. Water Efficiency](#)

Water Efficient Labelling Scheme (WELS) [www.waterrating.gov.au](http://www.waterrating.gov.au)

Water Services Association of Australia [www.wsaa.asn.au](http://www.wsaa.asn.au)

Water Tank Requirement [www.makeyourhomegreen.vic.gov.au](http://www.makeyourhomegreen.vic.gov.au)

Melbourne Water STORM calculator [www.storm.melbournewater.com.au](http://www.storm.melbournewater.com.au)

Sustainable Landscaping [www.ourwater.vic.gov.au](http://www.ourwater.vic.gov.au)

## 4. Stormwater Management

### Objectives:

- to reduce the impact of stormwater runoff
- to improve the water quality of stormwater runoff
- to achieve best practice stormwater quality outcomes
- to incorporate Water Sensitive Urban Design principles.

Issues	Applicant's Design Responses	Council Comments	CAR*
STORM Rating	A MUSIC modelling report demonstrating best practice has been submitted that relies on runoff from approximately 2,879m <sup>2</sup> of roof connected to 90,000 litres of rainwater storage for toilet flushing.	The notation on plans shows a 70,000 tank, not a 90,000 as required by the stormwater and WSUD reports. Please update the architectural plans to be consistent with the SMP.	3
Discharge to Sewer	-	-	-
Stormwater Diversion	-	-	-
Stormwater Detention	20,000 litre OSD tank in addition to the 90,000 rainwater harvesting tank.	-	-
Stormwater Treatment	-	-	-
Others	-	-	-

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### References and useful information:

SDAPP Fact Sheet: [4. Stormwater Management](#)

Melbourne Water STORM calculator [www.storm.melbournewater.com.au](http://www.storm.melbournewater.com.au)

Water Sensitive Urban Design Principles [www.melbournewater.com.au](http://www.melbournewater.com.au)

Environmental Protection Authority Victoria [www.epa.vic.gov.au](http://www.epa.vic.gov.au)

Water Services Association of Australia [www.wsaa.asn.au](http://www.wsaa.asn.au)

Sustainable Landscaping [www.ourwater.vic.gov.au](http://www.ourwater.vic.gov.au)



## 5. Building Materials

### Objectives:

- to minimise the environmental impact of materials used by encouraging the use of materials with a favourable lifecycle assessment.

Issues	Applicant's Design Responses	Council Comments	CAR*
Reuse of Recycled Materials	No specific information has been provided.	Consider using recycled materials in products such as insulation across the project.	4
Embodied Energy of Concrete and Steel	30% reduction in Portland cement content in concrete.	-	1
Sustainable Timber	All feature timber will be FSC or AFS accredited, or reused.	-	1
Design for Disassembly	No information has been provided.	Consider a small pallet of materials and construction techniques that can assist in disassembly.	4
Other	-	-	-

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### References and useful information:

SDAPP Fact Sheet: [5. Building Materials](#)

Building Materials, Technical Manuals [www.yourhome.gov.au](http://www.yourhome.gov.au)

Embodied Energy Technical Manual [www.yourhome.gov.au](http://www.yourhome.gov.au)

Good Environmental Choice Australia Standards [www.geca.org.au](http://www.geca.org.au)

Forest Stewardship Council Certification Scheme [www.fsc.org](http://www.fsc.org)

Australian Green Procurement [www.greenprocurement.org](http://www.greenprocurement.org)

## 6. Transport

### Objectives:

- to minimise car dependency
- to ensure that the built environment is designed to promote the use of public transport, walking and cycling.

Issues	Applicant's Design Responses	Council Comments	CAR*
Minimising the Provision of Car Parks	Car parking in basement levels.	-	1
Bike Parking Spaces	282 bicycle parking spaces plus additional spaces for visitors.	This falls short of our best practice standard for bicycle parking (10% of building users), which for 32,053m <sup>2</sup> NLA should be 320 bicycle spaces. Recommend increasing bicycle parking 320 spaces.	2
End of Trip Facilities	End of trip facilities provided.	-	1
Car Share Facilities	Car share spaces are visible on plans.	-	1
Electric vehicle charging	Electric vehicle charging current an option under consideration.	Recommend electric vehicle charging infrastructure for at least 5% of vehicle spaces is provided.	2

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### References and useful information:

SDAPP Fact Sheet: [6. Transport](#)

Off-setting Car Emissions Options [www.greenfleet.com.au](http://www.greenfleet.com.au)

Sustainable Transport [www.transport.vic.gov.au/doi/internet/icy.nsf](http://www.transport.vic.gov.au/doi/internet/icy.nsf)

Car share options [www.yarracity.vic.gov.au/Parking-roads-and-transport/Transport-Services/Carsharing/](http://www.yarracity.vic.gov.au/Parking-roads-and-transport/Transport-Services/Carsharing/)

Bicycle Victoria [www.bv.com.au](http://www.bv.com.au)

## 7. Waste Management

### Objectives:

- to ensure waste avoidance, reuse and recycling during the design, construction and operation stages of development
- to ensure long term reusability of building materials.
- to meet Councils' requirement that all multi-unit developments must provide a Waste Management Plan in accordance with the *Guide to Best Practice for Waste Management in Multi-unit Developments 2010*, published by Sustainability Victoria.

Issues	Applicant's Design Responses	Council Comments	CAR*
Construction Waste Management	A Construction Waste Management Plan does not have a firm target for construction and demolition waste.	Recommend a recycling/reuse target of at least 80% for construction and demolition waste.	4
Operational Waste Management	Little information has been included in the SMP.	Strongly recommend providing a system for organic waste and separate waste streams for glass and paper also.	4
Storage Spaces for Recycling and Green Waste	Area for bins and chutes can be identified on the plans.	-	1
Others	-	-	-

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### References and useful information:

SDAPP Fact Sheet: [7. Waste Management](#)

Construction and Waste Management [www.sustainability.vic.gov.au](http://www.sustainability.vic.gov.au)

Preparing a WMP [www.epa.vic.gov.au](http://www.epa.vic.gov.au)

Waste and Recycling [www.resourcesmart.vic.gov.au](http://www.resourcesmart.vic.gov.au)

Better Practice Guide for Waste Management in Multi-Unit Dwellings (2002)

[www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

Waste reduction in office buildings (2002) [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au)

## 8. Urban Ecology

### Objectives:

- to protect and enhance biodiversity
- to provide sustainable landscaping
- to protect and manage all remnant indigenous plant communities
- to encourage the planting of indigenous vegetation.

Issues	Applicant's Design Responses	Council Comments	CAR*
On Site Topsoil Retention	There is no productive topsoil on this site.	-	NA
Maintaining / Enhancing Ecological Value	Landscaping to terraces will enhance the ecological value of this site.	-	1
Heat Island Effect	No specific information has been submitted.	-	1
Communal Spaces	Little common areas or shared spaces	Consider a rooftop terrace garden as a shared space for users of the building.	4

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### References and useful information:

SDAPP Fact Sheet: [8. Urban Ecology](#)

Department of Sustainability and Environment [www.dse.vic.gov.au](http://www.dse.vic.gov.au)

Australian Research Centre for Urban Ecology [www.arcue.botany.unimelb.edu.au](http://www.arcue.botany.unimelb.edu.au)

Greening Australia [www.greeningaustralia.org.au](http://www.greeningaustralia.org.au)

Green Roof Technical Manual [www.yourhome.gov.au](http://www.yourhome.gov.au)

## 9. Innovation

### Objective:

- to encourage innovative technology, design and processes in all development, which positively influence the sustainability of buildings.

Issues	Applicant's Design Responses	Council Comments	CAR*
Significant Enhancement to the Environmental Performance	-	-	-
Innovative Social Improvements	-	-	-
New Technology	-	-	-
New Design Approach	-	-	-
Others	-	-	-

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### References and useful information:

SDAPP Fact Sheet: [9. Innovation](#)

Green Building Council Australia [www.gbca.org.au](http://www.gbca.org.au)

Victorian Eco Innovation lab [www.ecoinnovationlab.com](http://www.ecoinnovationlab.com)

Business Victoria [www.business.vic.gov.au](http://www.business.vic.gov.au)

Environment Design Guide [www.environmentdesignguide.com.au](http://www.environmentdesignguide.com.au)

## 10. Construction and Building Management

### Objective:

- to encourage a holistic and integrated design and construction process and ongoing high performance

Issues	Applicant's Design Responses	Council Comments	CAR*
Building Tuning	Comprehensive independent commissioning and tuning of all major appliances and building services.	-	1
Building Users Guide	No specific information has been provided.	Recommend a Building Users Guide be provided to the residents and building users.	1
Contractor has Valid ISO14001 Accreditation	-	-	-
Construction Management Plan	An Environmental Management Plan will monitor and control activities undertaken during construction.	-	1
Others	-	-	-

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 3 – **MORE INFORMATION** is required; 4 – **ESD IMPROVEMENT OPPORTUNITIES**

### References and useful information:

SDAPP Fact Sheet: [10. Construction and Building Management](#)

ASHRAE and CIBSE Commissioning handbooks

International Organization for standardization – ISO14001 – Environmental Management Systems

Keeping Our Stormwater Clean – A Builder's Guide [www.melbournewater.com.au](http://www.melbournewater.com.au)



## Applicant Response Guidelines

### Project Information:

Applicants should state the property address and the proposed development's use and extent. They should describe neighbouring buildings that impact on or may be impacted by the development. It is required to outline relevant areas, such as site permeability, water capture areas and gross floor area of different building uses. Applicants should describe the development's sustainable design approach and summarise the project's key ESD objectives.

### Environmental Categories:

Each criterion is one of the 10 Key Sustainable Building Categories. The applicant is required to address each criterion and demonstrate how the design meets its objectives.

### Objectives:

Within this section the general intent, the aims and the purposes of the category are explained.

### Issues:

This section comprises a list of topics that might be relevant within the environmental category. As each application responds to different opportunities and constraints, it is not required to address all issues. The list is non-exhaustive and topics can be added to tailor to specific application needs.

### Assessment Method Description:

Where applicable, the Applicant needs to explain what standards have been used to assess the applicable issues.

### Benchmarks Description:

The applicant is required to briefly explain the benchmark applied as outlined within the chosen standard. A benchmark description is required for each environmental issue that has been identified as relevant.

### How does the proposal comply with the benchmarks?

The applicant should show how the proposed design meets the benchmarks of the chosen standard through making references to the design brief, drawings, specifications, consultant reports or other evidence that proves compliance with the chosen benchmark.

### ESD Matters on Architectural Drawings:

Architectural drawings should reflect all relevant ESD matters where feasible. As an example, window attributes, sun shading and materials should be noted on elevations and finishes schedules, water tanks and renewable energy devices should be shown on plans. The site's permeability should be clearly noted. It is also recommended to indicate water catchment areas on roof- or site plans to confirm water re-use calculations.