



# Sustainability Guidelines for Capital Works



# Sustainability Guidelines for Capital Works

## Introduction

This document provides an overview of the sustainability requirements applicable to all capital works projects delivered by the Department of Justice and Regulation. This includes all building works, along with fitouts and refurbishment and non-building works such as infrastructure. The document is intended to be general enough to be applied to all projects, and provide sufficient specific advice so that it may be easily applied during project delivery.

The initiatives included in this document are based on typical industry best practices, and are consistent with recent projects delivered by the department. When included on a project, they are expected to provide real economic, environmental and health outcomes, including a reduction in energy costs of up to \$16 per m<sup>2</sup> per annum for some building types.

This document provides:

- updated benchmarks and initiatives to ensure capital works continue to include current best practice sustainable design practices.
- industry recognised benchmarks and initiatives to ensure consultants and contractors can readily understand and incorporate the requirements into projects.
- a consistent benchmark across all types and sizes of projects.
- a prescriptive approach to many sustainability initiatives, reducing the administrative burden for projects smaller than \$50 million; and providing
- information to be included in tender documentation for capital projects

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## Strategic Framework

The Department of Justice and Regulation (DJR) has a strong commitment to sustainable practices throughout their operations. This is grounded in an understanding that appropriate sustainable practices can have a positive impact on the local and global environment, operational efficiencies, and can promote additional wellbeing in staff.

New capital works present an opportunity to implement sustainable practices in a way that provides maximum benefit to occupants and the department's operations. Undertaking sustainable design is preferable to retrofitting facilities, which can be more expensive. Sustainable initiatives included in the structure and layout of the building, such as good orientation, passive design and daylight strategies, are embedded for the lifespan of the building, typically 60-100 years. Therefore, it is critical to include a holistic sustainability strategy into the design of a building as early as possible to achieve the best outcome possible to serve a community for generations.

## Economic and Environmental Outcomes

Including sustainable design in new works can have a wide range of positive outcomes. By including sustainable procurement strategies and considering ecological outcomes in site selection, the project can limit the impact on ecological systems in the local area, regionally and globally. Encouraging daylight and high quality natural ventilation options can promote wellness and resilience in staff and others using the facility, while reducing stress. Energy efficient design solutions can reduce a building's reliance on fossil fuels, and onsite renewable energy systems can reduce the peak power demand for the building.

Many of these environmental and health benefits have real economic outcomes, both to the local operating budget and to the wider community. Some initiatives such as improving energy and water efficiency have a direct benefit shown on the department's financial operations. The benefits from improving the local environment of staff and residents might not be as easy to quantify, but are likely to have a larger benefit through increased staff retention, reduced sick leave rates and increased productivity.

Other sustainable initiatives such as improved commissioning and tuning processes and monitoring the performance of building systems, can also improve the operation of the building, leading to lower maintenance costs and fewer complaints from occupants.

Comprehensive energy modelling of the initiatives in this document has been undertaken to determine the likely economic and environmental payback over the life of the facility. Using conservative assumptions, this assessment determined that the annual electricity savings are likely to be around \$4 - \$16 per m<sup>2</sup> of floor area and the annual gas savings of up to \$1.80 per m<sup>2</sup> of floor area, depending on the type of building.

The associated reduction in greenhouse gas emissions is expected to be around 80 kg CO<sub>2</sub>-e per m<sup>2</sup> of floor area, again depending on the type of building.

Some initiatives do not currently have an economic payback when considering only the operation of the facility, such as sustainable procurement and environmentally preferable materials. However, environmentally preferable materials and products typically have the lowest cost overall, if the life cycle and ecological values are considered. Additionally, these initiatives generally have benefits under the Victorian Industry Participation Program (VIPP)

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## Environmental Performance Reporting

Currently, all Victorian Government departments are required by the Commissioner for Environmental Sustainability to maintain an Environmental Management System (EMS), and report in accordance with Financial Reporting Directive 24C. Since 2007-08 the department has included both office-based and operational activities within this process. This includes identifying environmental impacts from energy, water, waste, transport, paper and purchases, recording environmental performance in these areas and taking actions as part of a continuous improvement process.

## Climate Change Adaptation Framework

The Victorian Government has implemented a whole of government commitment to climate adaptation. This commitment involves risk management strategies facilitating climate resilience across public assets.

## Environmental Management and Sustainability Policy

The Department manages its aspirations and responsibilities through its Environmental Management and Sustainability Policy. The policy commits the Department to monitor its environmental performance and engage in continual improvement activities.

## Climate Change Act 2017

The Victorian Climate Change Act 2017 embeds a long-term state-wide emissions reduction target of net zero greenhouse gas emissions by 2050. This applies to all emissions both from public and private sector activities.

## TAKE2 Initiative

TAKE2 is a collective climate change pledge initiative that supports all Victorians to take action on climate change. The Victorian government has made a TAKE2 pledge “that Victorian Government departments will take action to combat climate change. We’ll look at areas like energy use, transport and waste and find cleaner, greener ways to operate. This will contribute to one whole-of-government pledge.”

## Department Climate Change Pledge

The department committed to eight climate change pledges in the 2016-2020 pledge period. One of these pledges focused on incorporating sustainable design into all new Capital Projects. The pledge utilises modelling within the Building Code of Australia for quantifying energy use and reduction in emissions. Individual construction projects and their benefits will be referenced when reporting under the department’s pledges.

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## Implementation Process

The department delivers a large variety of capital works projects, each with various security requirements and functions. To tailor the guidelines to each type of works expected to be delivered, the following process outline has been provided.

All works are expected to be categorized by one of the four project types listed in the following table. Each type of project has a different assessment process depending its scope, security requirements and function.

Additionally, the level of administration and oversight increases as the contract value increases, consistent with achieving the lowest possible lifecycle costs for a project. A project with a \$3 million value delegates ESD responsibility to the architect or project team member, whereas a \$60 million project requires a full assessment by an ESD consultant, with energy modelling to inform lifecycle costings.

For the purpose of this document, total contract value refers to the value of the construction cost, excluding property acquisition, consultant's fees, furniture and equipment, authority charges, temporary accommodation and project administration.

Type of Projects	Total Contract Value		
	<\$5m	\$5m - \$50m	>\$50m
<i>New buildings, refurbishments and fitouts in secure environments</i>	A	B	C
<i>Fitouts and refurbishments (except in secure environments)</i>	D	E	E
<i>New buildings and refurbishments (except in secure environments)</i>	F	G	H
<i>Non-building infrastructure works</i>	J	J	J

### ***Process A: New buildings, refurbishments and fitouts in a secure environment with a TCV less than \$5 million.***

- No specific ESD consultant – Architect responsible for ESD
- Architect applies the minimum design standards to ensure a high level of sustainability is included
- No benchmarking required

### ***Process B: New buildings, refurbishments and fitouts in a secure environment with a TCV between \$5 million and \$50 million.***

- ESD consultant appointed
- ESD consultant verifies minimum standards and benchmarking requirements have been met
- Simplified benchmarking - no modelling required
- Post occupancy tuning scope

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## ***Process C: New buildings, refurbishments and fitouts in a secure environment with a TCV greater than \$50 million.***

- ESD consultant appointed
- ESD consultant verifies minimum standards and benchmarking requirements have been met
- Full benchmarking including energy and water modelling
- Post occupancy tuning scope

## ***Process D: Fitouts located outside of secure environments with a TCV less than \$5 million***

- No specific ESD consultant – Architect responsible for ESD
- Architect applies the minimum design standards to ensure a high level of sustainability is included
- Office only – refer to the Victorian Government Office Accommodation Guidelines 2007 for additional requirements, including a 5 Star Green Star – Interiors Rating and a 5 Star NABERS Tenancy Energy Rating and requirements for the building owner to meet.
- Office only – where the office accommodation is leased, a lease clause is to be included which requires the building owner to rate the building under NABERS Base Building Energy each year, and publicly publish the result on the NABERS website and provide the rating to the tenants.

## ***Process E: Fitouts located outside of secure environments with a TCV greater than \$5 million***

- ESD consultant appointed
- ESD consultant verifies minimum standards have been met
- Building is to be benchmarked against a 5 Star Green Star Rating
- Office only - where the accommodation is leased, a lease clause is to be included which requires the building owner to publish the energy performance of the building each year, using NABERS or other benchmarks.
- Office only – refer to the Victorian Government Office Accommodation Guidelines 2007 for additional requirements, including a 5 Star Green Star – Interiors Rating and a 5 Star NABERS Tenancy Energy Rating and requirements for the building owner to meet.

## ***Process F: New buildings and refurbishments located outside of secure environments with a TCV less than \$5 million.***

- No specific ESD consultant – Architect responsible for ESD
- Architect applies the minimum design standards to ensure a high level of sustainability is included
- No benchmarking required

## ***Process G: New buildings and refurbishments located outside of secure environments with a TCV between \$5 million and \$50 million.***

- ESD consultant appointed
- ESD consultant verifies minimum standards have been met

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- Building is to be benchmarked against a 5 Star Green Star Rating
- Energy and water modelling is optional
- Post occupancy tuning scope

## ***Process H: New building and refurbishments outside of secure environments with a TCV greater than \$50 million.***

- ESD consultant appointed
- ESD consultant verifies minimum standards and benchmarking requirements have been met
- Building is to be benchmarked against a 5 Star Green Star Rating
- Energy and water modelling is required
- Post occupancy tuning scope

## ***Process J: Non-building infrastructure works***

- Principal Consultant applies sections of the minimum sustainable design standards (management, materials and ecology as appropriate)



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## Building Types

The Sustainable Prisons Guide uses ten Sustainability Categories to differentiate between different types of buildings.

For simplicity, areas have been categorised based on typical sustainable initiatives that apply to each space, rather than expected use or energy consumption of the space. As such, various different spaces with different usage patterns have been grouped together.

For example, both 12 hour and 24 hour administration areas have been grouped together as Category 1, and all common areas have been grouped together as Category 2, despite large variations in occupancy and energy consumption.

Category 8 is a catch all category for all building areas that do not fall into the previous seven categories. This category is for application in non-secure environments only – all areas in prisons and correction facilities should be allocated to categories 1-7.

Categories 9 and 10 are for non-building works – fitouts and infrastructure works respectively.

For fitout / refurbishment works in secure environments, it may be appropriate to only include sustainability initiatives that are included in both category 9, and the applicable 1-7 category. For instance, a refurbishment in a cell block should only have to comply with the refurbishment related initiatives (category 9) that are applicable in a cell block (category 3).

Sustainability Categories	Space Types
Category 1	Administration: Office spaces, boardrooms, meeting rooms and similar spaces
Category 2	Common rooms: Educational spaces, gathering/common spaces, shared dining rooms, lunch rooms, day rooms, faith-based rooms, kitchen, recreation, commercial laundry and the like
Category 3	Cellular accommodation: Prisoner Cells, Management Cells, Observation Cells, and the like
Category 4	Back of house: toilets, change rooms, storage areas, receiving areas, cleaners' rooms, plant rooms, server rooms and the like
Category 5	Transient spaces such as lobbies and corridors
Category 6	Self-contained cottage accommodation: bedrooms, living rooms, dining rooms and kitchens
Category 7	Industries
Category 8	Non-secure building works which do not fall into the categories above
Category 9	Fitout and refurbishment works
Category 10	Non-building infrastructure works such as sewer works, treatment plants, electricity upgrades



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## Minimum Sustainable Design Standards

The minimum sustainable design standards have been developed to ensure a minimum level of compliance across all projects. These standards contain 'common sense' type initiatives which are proven to have an environmental benefit and reduce whole of lifecycle project costs, including operating costs.

- The Minimum Sustainable Design Standards have been separated from the benchmarking process. This means that if a project cannot comply with a standard due to the reasons listed below, it does not affect the scoring and benchmarking process. The project is still compared fairly to other projects.
- Exemptions from the Minimum Sustainable Design Standards are allowable where the initiative is not relevant to the scope of the project or not achievable due to security concerns. Exemptions, exclusions or deviations are not allowed due to cost reasons alone.
- Application of, and variation away from the Minimum Sustainable Design Standards are to be approved by the Director BEBS on a case by case basis.

A full list of proposed Minimum Sustainable Design Standards has been provided as Appendix A.

## Application Requirements

The standards are mandatory for all projects except where it is not applicable to the scope of the project or where it is not possible due to security reasons. Cost reasons alone are not sufficient to deviate from the standards.

Each project is to submit a summary of the proposed design against the Minimum Sustainable Design Standards, highlighting any deviations for approval by the Environment Team within the Department.

### **Small Building Projects, Refurbishments and Fitouts <\$5m**

A template for smaller projects to submit for approval has been attached as Appendix B. This is appropriate for all building works smaller than \$5 million who are not expected to engage a specialist ESD Consultant.

This process applies equally to projects in secure and non-secure environments.

### **Medium and Large Building Projects, Refurbishments and Fitouts >\$5**

Building works larger than \$5 million are to engage a specialist ESD consultant who is to demonstrate how the project meets the Minimum Sustainable Design Standards. This may take the form of a report, an excel table, or other means as appropriate.

This process applies equally to projects in secure and non-secure environments.

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## **Infrastructure Projects**

Non-building infrastructure projects (such as waste water treatment, electricity supply upgrades and similar) typically have a high material cost but are simpler to administer, from an environmental performance point of view. As such, an ESD Consultant is not required to be employed for these projects and the simple templates in Appendix B may be used.

## **Infrastructure and Fitout Works**

Infrastructure and fitout / refurbishment projects are only required to meet some of the Minimum Sustainable Design Standards, as listed in Appendix A.

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## Benchmarking

It is understood that each project is different and not all of the initiatives included in the Minimum Sustainable Design Standards will be applicable to all projects. There are expected to be many instances where a project will be exempted from one or more standards.

However, the department requires that regardless of the type of project, all projects are held to a consistent benchmark. As such, a benchmarking process has been developed to compare different projects of different types and budgets fairly. This process can be used to ensure all projects achieve a consistent sustainable outcome.

This section of the document outlines how the benchmarking process is expected to proceed for all projects.

## Rating Tools & Scope

Most commonly used industry green building rating schemes, such as Green Star and LEED, are rated out of a score of 100. A score of 60 points or over under these rating schemes equates to a 5 Star Green Star rating or a LEED Gold rating, both of which are commonly interpreted as 'industry best practice'. Other ratings tools have similar ratings at a similar point score. It is generally accepted in the industry that to achieve all 60 points at completion, it is best to target 66 points during the design process.

All rating tools have slightly different categories, but generally cover water, energy, occupant health, site ecology, transport, materials, management, and wider impacts.

For most department projects, providing sustainable transport does not provide an environmental benefit, as residents do not use transport and staff are highly unlikely to cycle to work in remote locations. Therefore, the benchmarking process has excluded this category to prevent projects providing facilities which will be unused. Projects may include sustainable transport options as innovations, provided they justify the expected use of these facilities.

Other specific initiatives are not relevant or not possible in certain parts of secure environments. These have been listed in detail in the exclusions section of these guidelines.

Projects are encouraged to use all available rating tools, both local and global, to demonstrate how they have included innovative sustainable initiatives into their design. However, to ensure consistency each project should have an equivalent sustainable outcome to a current 5 Star Green Star rating.

## Target

Projects are required to demonstrate an equivalent sustainable outcome to a current 5 Star Green Star rated building by achieving 60 points (excluding any transport points) in a self-assessed benchmarking exercise. A 60 point benchmark has been chosen as it represents 'Best Practice' sustainability. This benchmark should be achievable for all projects delivered by the Department, especially given the expected life cycle cost savings. The sustainable initiatives included to achieve this benchmark would be expected to be similar to those delivered recently by the Department.

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As no points will be awarded for Sustainable Transport, this 60 point target is from a maximum of 90 points (plus innovation), which is deemed equivalent to 66 points out of 100 in most rating schemes.

## Exclusions

Due to the nature of secure environments, many areas cannot meet the requirements for certain credits due to functional, safety or security reasons. Therefore, these areas have been excluded from some of the credit requirements.

Exclusions are only available for space types 1-7 in secure environments.

A list of exclusions is provided in Table 2. This list is based on the Green Star – Design and As-Built v1.1 rating tool, but projects may treat similar initiatives from other tools in the same way. Any exclusion not specifically allowed in this guide is to be submitted to the BEBS Team for approval.

## Simplified Benchmarking

Many of the points within green building rating schemes rely on comparing the design against a 'reference building', representing minimum compliance with the building code. This process generally involves computational modelling and can be time intensive to demonstrate compliance. To simplify the process for projects smaller than \$50 million, alternative compliance pathways have been developed and are provided in Appendix C.

Note that these pathways have been developed based on the Green Star – Design and As-Built v1.1 tool, but project teams may submit alternative pathways for other rating tools or future updates of the Green Star tool. When submitting alternative pathways, the project team is to justify their approach by comparing it to pathways outlined in this document.

Projects larger than \$50 million are required to use the full credit criteria including computational modelling if required by the tool.

## Application Requirements

Although all projects are required to achieve the same benchmark, the level of oversight required in this process has been tailored to the different processes involved in different project values.

For projects with a Total Contract Value (TCV) smaller than \$5 million, the building is deemed to comply with the benchmarking process provided the building meets the Minimum Sustainable Design Standards, with no further evidence required.

For projects with a TCV between \$5 million and \$50 million, an ESD consultant is expected to be engaged and projects are required to demonstrate that they achieve the required benchmarking performance. Projects in this range may use the simplified benchmarking process listed in Appendix C, with a summary provided in Table 2.

For projects with a TCV greater than \$50 million, an ESD consultant is expected to be engaged and projects are required to demonstrate that they achieve the required benchmarking performance. For projects in this range, the full Green Star criteria are required to be followed,

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including energy and daylight modelling where required, rather than relying on the simplified process.

## Innovation

Project teams are encouraged to include innovative design solutions in their projects, and additional points are available for each innovation points. There is no limit to the number of innovation points a project can claim.

Projects that are struggling to achieve the requisite 60 points because of site constraints should look to other rating tools for inspiration. Suggestions include:

- International tools such as WELL, LEED, BREEAM, DGNB, Living Building, One Planet Living & Green Mark
- Alternative local tools such as BESS, Infrastructure Sustainability Rating Scheme, BASIX

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Table 1: Summary of exclusions and simplified pathways for a typical Green Star – Design and As-Built v1.1. Note that no exclusions are allowed in projects outside of secure environments (categories 8-10)

Credit	Criteria	Applicable Categories						
<b>01 Green Star Accredited Professional</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>02 Commissioning and Tuning</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>03 Adaptation and Resilience</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>04 Building Information</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>05 Commitment to Performance</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>06 Metering and Monitoring</b>	Simplified	<b>All Categories</b>						
<b>07 Construction Environmental Management</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>08 Operational Waste</b>	Simplified	<b>All Categories</b>						
<b>09 Indoor Air Quality</b>	Full Green Star Criteria	1	2					7
<b>10 Acoustic Comfort</b>	Full Green Star Criteria	1	2					7
<b>11 Lighting Comfort</b>	Full Green Star Criteria	1	2					7
<b>12 Visual Comfort</b>	Simplified	1	2					7
<b>13 Indoor Pollutants</b>	Full Green Star Criteria	1	2		4	5		7
<b>14 Thermal Comfort</b>	Simplified	1	2		4	5		
<b>15 Greenhouse Gas Emissions</b>	Simplified	<b>All Categories</b>						
<b>16 Peak Electricity Demand Reduction</b>	Simplified	<b>All Categories</b>						
<b>17 Sustainable Transport</b>	Excluded	<b>N/A</b>						
<b>18 Potable Water</b>	Simplified	1	2		4	5		7
<b>19 Lifecycle Impacts</b>	Simplified	<b>All Categories</b>						
<b>20 Responsible Building Materials</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>21 Sustainable Products</b>	Full Green Star Criteria	1	2		4	5		7
<b>22 Construction and Demolition Waste</b>	Simplified	<b>All Categories</b>						
<b>23 Ecological Value</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>24 Sustainable Sites</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>25 Heat Island Effect</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>26 Stormwater</b>	Simplified	<b>All Categories</b>						
<b>27 Light Pollution</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>28 Microbial Control</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>29 Refrigerant Impacts</b>	Full Green Star Criteria	<b>All Categories</b>						
<b>30 Innovation</b>	Simplified	<b>All Categories</b>						

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