**Attachment 2**

CITY OF MONASH

# POLICY GUIDE FOR ENVIRONMENTAL SUSTAINABLE DESIGN IN CAPITAL WORKS - Buildings and Infrastructure

25 JANUARY 2022

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# 1 Purpose

This guide was prepared to support the implementation of the Monash Environmental Sustainable Design (ESD) Policy for buildings and Infrastructure. Both the guide and the policy were developed in partnership with the eight member councils of the Eastern Alliance for Greenhouse Action (EAGA): Glen Eira, Stonnington, Whitehorse, Boroondara, Maroondah, Monash, Yarra Ranges and Knox.

Existing ESD policies and environmental strategies were compared across the councils and critiqued through a benchmarking process which involved researching and defining "best practice" for Victorian councils. Surveys and workshops were conducted with each Council to assess the current and potential effectiveness of ESD implementation. The results of these surveys have informed the policy template and guide. The culmination of a policy development process was a suitable template which has been tailored to meet council requirements.

With appropriate budget, resourcing and customised processes for ESD implementation based on the needs of each individual council, best practice is achievable for Melbourne's eastern councils.

This Monash Environmental Sustainable Design Policy for Buildings and Infrastructure (the Policy) should be adhered to when planning for, or carrying out works, on new or existing Council buildings and infrastructure.

## How to use this document

This document should be used to guide the delivery of a project / program of the Monash Environmental Sustainable Design Policy for Buildings and Infrastructure. It provides more detail about the key elements in the Policy. The project stages where this document should be referenced are:

- During feasibility studies
- When developing the business case and allocating budgets
- When preparing cost estimates
- When developing a Sustainable Design Assessment (SDA)
- As part of the brief to Designers and Consultants (Architectural, Building Services, etc.)
- During Schematic Design and for Project Documentation
- As part of the request for tender documentation (for the builder / contractors)
- During project construction
- During project commissioning, tuning and handover.

For each project a Sustainable Design Assessment (SDA) should be prepared as early in the project as possible to set targets and major ESD initiatives for the project.

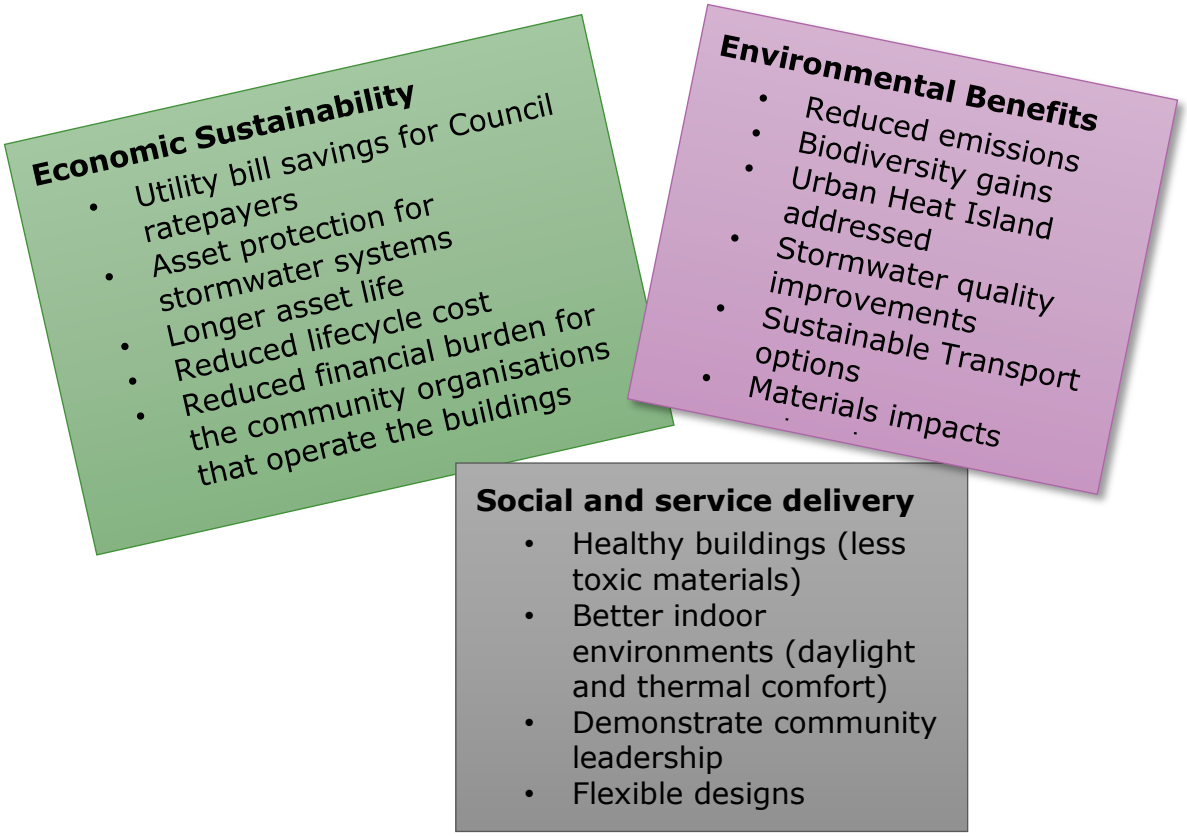
# 2 Context

Council recognises that best practice ESD outcomes may incur additional upfront cost, however are significantly outweighed by the financial savings and other co-benefits secured over the asset's lifecycle.

Council is committed to minimising the environmental impacts of facilities throughout their lifecycle. Council is a leader in the provision and operation of facilities that are resource efficient, enhance the natural environment and consider the broader needs and health of occupants both now and in the future. The benefits of building sustainability include cost savings from reduced energy, water, and waste; lower operations and maintenance costs; reduced public liability; improved storm water and biodiversity outcomes; and enhanced occupant productivity and health.

ESD techniques and practices are changing rapidly and current best practices have advanced considerably in recent years. A review of Green Star Certified buildings[1] for example, estimates that, on average, they achieve:

- A reduction in energy use of up to 85% against equivalent conventional buildings;
- A reduction in potable water consumption of over 60% against conventional buildings; and
- An average of 69% of construction waste being diverted from landfill.




While **minimum requirements** for building design, construction and performance are set in the National Construction Code (NCC), it is widely acknowledged that these requirements fall well short of what would be considered 'best practice' Environmentally Sustainable Design (ESD). Therefore, councils need policies at their disposal to ensure that new buildings and refurbishments are designed and constructed with an ESD focus, with a particular emphasis on emissions reductions and / or carbon neutrality.

**Green Star's Design and As-Built (D&AB)** is Australia's leading sustainability rating tool. Green Star Certified buildings can be designed and constructed with typical paybacks periods between three and seven years. The 'Green Budget' in the initial capital outlay for Green Star Rated buildings is in the order of 2-10%.

[1] GBCA (2008), *Valuing Green - How green buildings affect property values and getting the valuation method right.* Green Building Council of Australia 2008

Other ESD benchmarking tools like the **Built Environment Sustainability Scorecard (BESS)** – which was created and is maintained by Victorian councils through the Council Alliance for a Sustainable Built Environment (CASBE) – can achieve similar results by setting clear sustainable design goals at the planning phase of a project.

# 3 Managing Costs of Green Buildings

Current international studies clearly demonstrate that there is little correlation between environmental performance and final delivered cost[2].

Many aspects of good ESD design, such as designing compact buildings with good solar orientation and improved insulation, will have minimal or even positive capital and operational cost implications. For example, a well orientated and insulated building can reduce the size and capital cost of heating and cooling plant.

For higher cost energy saving and renewable energy features, life cycle costing should be employed to demonstrate financial savings over the life of the building. Life cycle costing shows the real cost of trade-offs between capital and operating costs over the operational life of the building.

This ESD allocation should be considered as an investment (not an impost) that will return benefits over the life of the building.

Incremental ESD costs are additional costs for implementing ESD measures over and above the basic cost price of not implementing those measures (for example the cost difference between poor performing single glazed and high thermal performance windows beyond what is required in the building code).

For larger buildings (>$1 million) the percentage of the budget spent on ESD features will generally be a smaller proportion of the total budget, however there may also be a driver to implement innovative technologies in larger buildings which may increase capital costs. Any ESD showcase building and new technology needs to have executive leadership approval before promoting.

Experience has shown that the ESD allocation needs to be specifically sheltered during cost saving discussions and value management sessions, as not negotiable, and not to be diverted to other building aspects.

This ESD budget may be used to fund:

- Incremental costs between conventional design and green building solutions;
- Design integration process & workshops, commissioning, incremental ESD documentation, Green Star certification and/or user training & education; and
- Building simulation and researching & trialling new or innovative technologies.

There are some trends which make ESD easier to achieve/justify including:

- Increasing energy and water prices, faster than underlying inflation, due to climate change and climate change actions;
- The possible introduction of carbon trading, grants and rebates, renewable energy targets and other incentives;

[2] ibid.

- Lowering of capital cost of technologies such as water tanks and solar photovoltaic prices as manufacturing processes and technologies mature; and
- Increases in competition making ESD products and services more mainstream and affordable.

While specific environmental features do have individual costs, they are not the primary determining factor in the final $/m$^2$ delivered cost of a building. Items that have greater impacts include the size and shape of the building, the cost of financing, project delays and mistakes, materials choices, financial costs, architectural features and finishes, supplier discounts, land value etc.

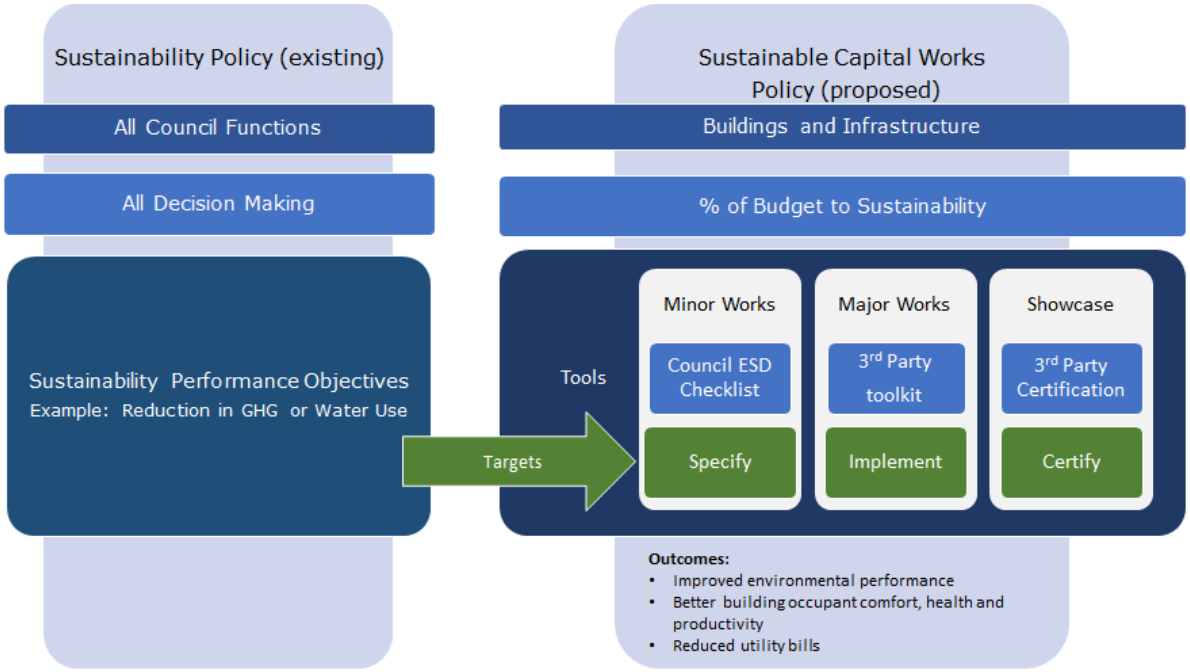
If severe budget constraints are present, you may need to consider a simple low cost ESD approach. For example, reducing the complexity and size of building HVAC systems and relying instead on natural ventilation and passive solar design with good insulation and orientation. Many ESD features such as water efficient fittings, LED lighting, construction waste recycling, and low VOC paints now have no incremental cost.

Alternatively high performance ESD features can be exchanged with other building features during the design phase, to achieve the best outcome: for example, trading off large areas of glazing, a complex building footprint or a large foyer, for energy efficient double glazed facades and solar power.

**Finally reducing the building footprint can help reduce costs. Good design can optimise spaces and layout and remove about 10% or more of the initial building footprint to reduce costs. A more compact but well-functioning building save materials and ongoing energy costs.**

Large projects have the option of being designated as ESD showcases, where Council will deliberately trial new technologies, approaches or more ambitious targets. Where this is the case this should be identified before the project budget has been allocated so the appropriate resources can be applied to the project.

***Sustainability in buildings and infrastructure policy structure***



# 4 Life Cycle Costing (LCC)

In Life Cycle Costing (LCC) for ESD initiatives, each building will have a number of areas that can be assessed:

- Building fabric;
- Internal finishes;
- Structures;
- Fittings;
- Building Services;
- Site-work and stormwater; and
- ESD Installations (water tanks, solar etc).

LCC costing can be defined as the total of the financial costs over the life of the building, including the costs of designing, procuring, operating and maintaining the systems.

The objective of LCC costing is to assist in decision making by providing a means of comparing different option costs. Objectives for balancing:

- Capital Cost;
- Reliability of the systems throughout their useful life;
- Maintenance costs of the systems throughout their useful life;
- Value for money achieved through design, construction, operation and system maintenance; and
- Achievement of the ESD Principles.

Typically LCC option cost data is inputted into a decision model which considers factors such as a interest rate, costs / rates for energy, water charges, cost escalation (only for items or instances such as carbon trading over and above the anticipated rate of inflation).

Provided inflation for all costs is approximately equal, the calculation should exclude cost escalation impacts when undertaking LCC costing. However, in Victoria it is likely that cost escalation for water and power costs will be about 5-15% above inflation to deal with climate change and climate change actions.

For ESD items LCC costing should only factor in incremental costs when evaluating the cost of an item. The incremental cost is the cost premium above what would have been spent anyway in a business as usual scenario.

# 5 Scope

This section outlines the issues that need to be addressed in order for ESD outcomes to be successfully delivered.

This policy applies to:

- The design, construction and operation of all substantial renewals, renovations, upgrades to Council buildings;
- The design and construction of Council infrastructure including but not limited to carparks, footpaths, roads and drainage; and
- Council staff and all external designers, engineers, contractors and stakeholders involved in capital works projects.

In addition, the following issues should be managed:

## Stakeholder communication

Conversations around ESD are an essential function of the building scoping process before funding is determined.

## Clear documentation during design

Failure to document ESD features of the building before the project goes to tender can lead to increased costs from contractual variations, errors and project delays once the project is under construction. It is vital that all sustainability features are documented early and included on all applicable project plans, schematics and specifications.

## Fit for purpose

ESD initiatives should be practical in their operation and robust enough to stand up to everyday wear and tear. Consideration should be given to what happens when a system malfunctions and repairs are undertaken by a tradesperson unfamiliar with the technology. Permanent signage, warnings and/or instruction plaques may need to be securely attached to any complex systems.

Captured, reused or recycled water should be of sufficient quality to be safely used for purpose it is intended for.

## Consideration of Building End Users and Operators

Integration and usability of ESD components is important (e.g. it is no use having a manual purge system/ pool blanket/ greywater treatment/ compost bin etc. if no-one's going to use or maintain it). This requires having to consider occupants and training (or fully automatic systems). A stakeholder engagement process may be required.

## Case Studies

The ESD process should include a structured mechanism to capture learning from past projects and apply them to new projects. This process doubles as an avenue for promotion of sustainability projects in the wider community.

## Standardisation

Developing a list of standard preferred energy and water saving product options to be used on future projects can reduce the effort that goes into the initial research of specifying and identifying the suitable product each time e.g. a list of preferred toilets. It could also make it easier to incorporate ESD into smaller facilities and reduce maintenance costs as there will be less variety across different sites. These standards need regular review to keep them current or they will become an impediment, and to make sure innovation is not limited.

## Quantification or results

Council should be capturing and reporting on the actual benefits achieved from ESD as compared to a Business as Usual approach to reinforce the value of incorporating ESD in projects.

### Balancing Sustainability with other requirements

Issues which may impact on the ability to incorporate common green building initiatives, such as operable windows and cross flow ventilation, include:

- Internal stakeholder of special use requirements;
- Fire protection & bush fire management;
- Existing conditions;
- Heritage considerations;
- OH&S;
- Privacy (visual and acoustic);
- Accessibility;
- Functionality and operations requirements; and
- External noise.

Where these constraints are present, they should be identified early in the project planning process such that appropriate actions, green building targets and budgets can be established for the project.

# 6 Objectives

This section outlines details of minimum requirements as well as opportunities for excellent performance in differing building types and sizes.

An effective ESD policy will have clear, simple and specific targets based on project size. The following pages outlines the various options for setting sustainability targets based on using toolkits, addressing policy outcomes, or setting specific prescriptive items to be addressed. A mix of these three approaches is likely to be necessary – with the approach chosen that is best suited to each size and type of project.

## 6.1 Sustainability Management Plans (SMP)

Depending on the size of the project, Council will develop or instruct the Principal Consultant to prepare a **Sustainability Management Plan (SMP)** which documents how all ESD objectives, targets and standards will be met, and how the performance outcomes will be achieved. The SMP must also provide a schedule for implementation, ongoing management, maintenance and monitoring and how the ESD elements and practices can be maintained over time. The SMP should be used to survey available sustainable technologies and innovative approaches, and to resolve any questions around feasibility of applying ESD initiatives to the project or program. For a program of works, one regularly updated SMP will generally meet requirements.

All applicable projects / programs will be required to undertake a Sustainability Management Plan (SMP) during the preliminary phases. All projects should include an SMP comprising an ESD report and associated feasibility studies, and a Green Star rating (either informal or formal) will be required, appropriate to the size of the build.

Infrastructure projects should reference the Infrastructure Sustainability (IS v 2) Design and As Built rating tool (by ISCA).

Development of an SMP may need specialist input from either the Council ESD Officer or an external ESD consultant.

## 6.2 ESD objectives included in the policy

The following are the basic minimum objectives in the ESD policy. These can be added to via industry ESD toolkits or additional items in Appendix A – ESD Design Checklist.

| Objective | Buildings | Infrastructure | ☑ Applicable to Project / Program | QA and project notes |
|---|---|---|---|---|
| **Greenhouse gas emissions** | | | | |
| All building services to be powered by electricity (no fossil fuels) using efficient heating, cooling and hot water, except under exceptional circumstances or when user needs cannot be met. | ✓ | | ☐ | |
| Use 100% renewable energy, through onsite generation and storage and/or also offsite renewable energy (i.e. GreenPower, PPA) via retailing arrangements. | ✓ | | ☐ | |
| Procurement of materials and choice of construction methods must reduce embedded carbon emissions wherever feasible – target materials cause less emissions in their production (i.e. target an 80% reduction in embedded carbon). | ✓ | ✓ | ☐ | |
| **Indoor Environment** | | | | |
| Orient building along East-West axis where possible and appropriate. Main building entrances facing south, south-east or south-west, must include an airlock or revolving door. | ✓ | | ☐ | |
| All windows fitted with blinds, shade screening and/or window tinting to minimise glare. Provide good levels of natural light to most of the occupied area. | ✓ | | ☐ | |
| Incorporate double glazed windows, insulation and draft proofing as standard. | ✓ | | ☐ | |
| **Project life cycle** | | | | |
| Where appropriate, design for at least a 100-year asset life to greatly reduce lifecycle cost. Design for long term resilience, adaptability and flexibility. | ✓ | ✓ | ☐ | |
| Ensure that climate change impacts and adaptation has been addressed to improve resilience to extreme weather events. | ✓ | ✓ | ☐ | |
| **Waste** | | | | |
| Divert a minimum of 70% of the demolition and construction waste by weight to recycling. | ✓ | ✓ | ☐ | |
| Specify recycled content construction materials. This is to help generate and support markets for recycled materials. | ✓ | ✓ | ☐ | |

| Objective | Buildings | Infrastructure | ☑ Applicable to Project / Program | QA and project notes |
|---|---|---|---|---|
| Well marked waste bin locations for separate collection of landfill, paper, cardboard, glass, plastic and organics. Dedicated storage for waste and recycling with easy access for collection. A waste management plan must be prepared. | ✓ | | ☐ | |
| **Biodiversity** | | | | |
| Ensure that landscaping and plant selection enhances local biodiversity values with at least 70% by area of new plants being indigenous and drought resistant. | ✓ | ✓ | ☐ | |
| Ensure that the design retains and plants canopy trees and understorey, where possible to contribute to urban greening and to reduce the urban heat island effect. | ✓ | ✓ | ☐ | |
| **Transport** | | | | |
| Infrastructure must support all forms of active transport and wherever possible prioritise safe environments for pedestrian and bicycle users, and electric gadget users (e.g. electric or mobility scooters). | ✓ | ✓ | ☐ | |
| Wherever possible buildings incorporate end of trip facilities including secure bicycle parking, shower and change room numbers using Green Star standards. | ✓ | | ☐ | |
| Consider provision of electric vehicle charging infrastructure, charging and cabling wherever feasible. | ✓ | ✓ | ☐ | |
| **Stormwater** | | | | |
| Water Sensitive Urban Design (WSUD) elements should be included in drainage design to contribute to landscape design and urban cooling. | ✓ | ✓ | ☐ | |
| Aim to achieve 100% of BPEM stormwater targets (a 45% reduction in nitrogen runoff) through harvesting, infiltrating and WSUD treatments. | ✓ | ✓ | ☐ | |
| Use permeable materials and infiltrate stormwater where possible to reduce runoff volumes. Target 40% reduction in average annual runoff volumes pre and post development. | ✓ | ✓ | ☐ | |
| **Materials** | | | | |
| Specify (where feasible) reused / recycled / low emission/ eco-certified content in building and infrastructure construction materials (e.g. roads, framing, slabs, footpaths, shared paths, kerb and channel, paint) | ✓ | ✓ | ☐ | |
| Optimise the size, shape and layout of buildings to reduce costs and materials use. | ✓ | | ☐ | |

| Objective | Buildings | Infrastructure | ☑ Applicable to Project / Program | QA and project notes |
|---|---|---|---|---|
| *Timber requirements*: must be responsibly sourced and FSC or PEFC certified[3]. | ✓ | ✓ | ☐ | |
| *Concrete requirements*: Use of low embedded carbon (Geopolymer / E-Crete) concrete, or substitute 30% of Portland cement with supplementary extenders. Specify that at least 40% of coarse aggregate or 25% of fine aggregate (sand) is a recycled material[4]. | ✓ | ✓ | ☐ | |
| **Energy and water efficiency** | | | | |
| Minimum 40% efficiency improvement over existing National Construction Code (NCC) for both water and energy use. The project's Sustainability Management Plan will detail how this can be achieved. | ✓ | | ☐ | |
| Insulation and building wrap to be inspected for correct installation by architect / Council representative at lockup stage prior to installation of plasterboard.<br>Building pressure testing and thermal scan should be completed as part of commissioning to ensure insulation quality. | ✓ | | ☐ | |
| All lighting should be LED and may include sensors. Outdoor lighting to be **high efficiency LED** warm white colour with daylight controls. No up lighting permitted. | ✓ | ✓ | ☐ | |
| **Management** | | | | |
| Building metering and monitoring, install and commission a Metering and Monitoring system capable of metering main energy circuits in the building such as lighting, hot water, HVAC and Solar. Where the installation of a BMS might achieve operational efficiencies, water meters including check meters are to be installed for new buildings to distinguish between building and external irrigation uses.<br>Monitoring system capable of gathering and reporting usage data from all meters to alert facilities team in case of atypical or high usage. Ensure all energy and water consumption can be easily monitored remotely by Council facilities and ESD team.<br>A building user and maintenance guides be produced to Green Star standards and issued to facilities manager and occupants as part of the commissioning and tuning process. | ✓ | | ☐ | |
| A project / program specific Construction Environmental Management Plan (CEMP) should be completed by the main construction contractor and approved by Council. | ✓ | ✓ | ☐ | |

Other less quantifiable issues such as: indoor environment quality, commissioning, energy monitoring, ongoing maintenance plan and liabilities, innovation and ESD excellence should be considered in a

[3] See Green Star Design and As-Built v1.2 Materials credits for more details

[4] See Green Star Design and As-Built v1.2 Materials credits for more details

Sustainability Management Plan (SMP). Appendix A and Appendix B provide templates for Sustainability Management Plans (SMP) for buildings and infrastructure respectively.

# 7 Requirements

## 7.1 Project Management and Checklists

Effective policy needs to clearly articulate targets and what each project needs to do in order to achieve them. A sustainable buildings and infrastructure policy needs to provide more detail than general sustainability policy - on how ESD is to be applied, and what targets are to be met. Issues around budgeting, value management, targets and benefits should be clearly articulated.

**The following table can be used as a project management checklist.**

## 7.2 Project management requirements checklist included in the policy

| Requirement | Project Stage | Applicability check ☑ and responsibility for implementation | QA and project notes |
|---|---|---|---|
| Demonstrate at business case stage how project will contribute towards achieving Council's sustainability targets. | Bidding and planning | ☐ | |
| Ensure that the business case includes budget for items required to meet sustainability principles and that respective teams are consulted at business case stage. | Bidding and planning | ☐ | |
| Include ESD principles into the project brief at inception, concept design, at detailed design and in tender documents. | Bidding and planning<br>Design | ☐ | |
| Seek specialist ESD technical advice for larger projects (See below 'project specific requirements' for guidance) from project inception to delivery. There may be additional requirements for different sized projects. | Bidding and planning<br>Design<br>Delivery | ☐ | |
| Generate a SMP and refer this to Council's ESD/environment officer for review prior to tendering. | Design | ☐ | |
| Document at schematic design stage a Sustainability Management Plan (SMP) of how the project or program will meet sustainability targets. | Design | ☐ | |
| Building SMP reports must clearly summarise the project specific sustainable design requirements and be supported by an appropriate ESD tool. | Design | ☐ | |

| Requirement | Project Stage | Applicability check ☑ and responsibility for implementation | QA and project notes |
|---|---|---|---|
| Infrastructure SMP reports must consider; sustainable construction materials procurement, construction environmental management, biodiversity enhancement opportunities, and integrated water management. | Design | ☐ | |
| Use the SMP report to consult with other internal stakeholders as necessary responsible for ESD, WSUD engineering, transport and biodiversity and tree canopy. | Design | ☐ | |
| Use lifecycle costing in procurement and contracting. Target the best long-term value to Council, rather than the cheapest up-front cost. Value management must protect ESD and recognise the value of community and environmental goals. | Procurement<br>Tendering<br>Delivery | ☐ | |
| Ensure that ESD objectives are included within the deliverables for tendered work. | Procurement<br>Tendering<br>Delivery | ☐ | |
| Ensure that commissioning, building tuning and handover is undertaken in a comprehensive way and that it includes the management of sustainable design initiatives. | Delivery<br>Occupancy | ☐ | |
| Report to Council annually as part of the capital works program delivery report on the key achievements of the sustainable buildings and infrastructure policy. | Delivery | ☐ | |

# 8 Process Roles and Responsibilities table

The chart below outlines general project stages and ESD elements, along with lines of communication.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Scoping and Business Case** | **Create Project working group that includes relevant service area representatives** | > | **Identify relevant ESD standards and policy requirements** | > | **Include ESD allowance for design, construction and commissioning in project budget estimates** | |
| ***Lead:*** | **PS** | | **PS** | | **PS** | |
| ***Includes:*** | **A, IP, RSA** | | **A, C, IP, RSA, DM** | | **A, IP, DM** | |
| **Design** | **Projects over $1 million and ESD consultant to be engaged to create a Sustainability Management Plan (SMP)** | > | **Projects over $1 million to appoint an Independent Commissioning Agent to review design** | > | **Sign off ESD scope of works in tender design brief** | > **Review ESD design proposal against design brief** |
| ***Lead:*** | **PM** | | **PM** | | **PM** | **PM** |
| ***Includes:*** | **IP, DM** | | **A, DM** | | **PWG, PSG, CMT, Council, ICA, DM** | **A, IP, RSA, ICA, DM** |
| **Contract development** | **Sign off ESD detail design for inclusion in construction tender** | > | **Include hold points for ESD components, building tuning period, and commissioning** | > | **Include Environmental Management Plan requirements in construction tender** | > **Ensure that any certifications such as Green Star requirements are included in the construction tender** |
| ***Lead:*** | **PM** | | **PM** | | **PM** | **PM** |
| ***Includes:*** | **ESDC, IP, RSA, DM** | | **FG, IP, ICA, DM** | | **FG, IP, DM** | **FG, IP, DM** |
| **Construction** | **Implement checks at set milestones to ensure ESD requirements are being included in the works** | > | **Include hold points for inspection of insulation quality, thermal scanning and building pressure tests** | > | **Ensure documentation for any third party certifications is collected for submission** | > **Ensure ESD sign off before practical completion** |
| ***Lead:*** | **PM** | | **PM** | | **PM** | **PM** |
| ***Includes:*** | **C, ESDC, ICA, DM** | | **C, ESDC, ICA** | | **C, ESDC, ICA, Co** | **A, C, Co, IP, RSA, ICA, DM** |
| **Commissioning, tuning and handover** | **12 months commissioning and building tuning to include ESD performance and handover** | > | **Develop an As-Built summary building users guide and maintenance manual** | > | **Provide information and training for Facility Managers and user groups for optimal ESD performance** | > **Monitor and report on ESD implementation and the ESD performance of the building** |
| ***Lead:*** | **PM, A** | | **PM, A** | | **PM** | **PM** |
| ***Includes:*** | **C, ESDC, ICA, DM** | | **C, ESDC, ICA** | | **A, IP, CM, ESDC, FM, UG** | **A, IP, CM, ESDC, FM, UG** |

**Responsible parties** – **A**: Assets; **C**: Consultant; **Co:** Contractor; **CM**: Communications & Marketing; **, DM: Design Manager; ESDC**: ESD Consultant; **FG**: Finance & Governance; **FM**: Facility managers; **ICA**: Independent Commissioning Agent; **IP**: Integrated Planning; **PM**: Project manager/Capital works; **PS**: Project sponsor; **PSG:** Project Steering Group; **PWG:** Project Working Group; **RSA**: Relevant service areas; **UG**: User groups.

# 9 Project Sustainability Management

The intention of this section is to outline a recommendation for a process that will increase Council's capacity to:

- Include ESD in consideration of the merits of a proposed building;
- Ensure that ESD considerations are weighed up in the consideration of the building's budget, position, functionality and design;
- In the interests of achieving a quality outcome and minimising expense and budget blow outs, ensure that the ESD outcomes are included in the budget costing and design from the beginning.

To make it easier for Council employees to include ESD considerations into the conversations, ask:

- What early considerations should be considered in the planning process (e.g. should a site be selected closer to public transport)?
- What the building ESD features should be?
- How it can ESD be best integrated into the design?
- How should environmental features be presented to both internal and external stakeholders?

The earlier these conversations take place, the better the chance of a well-integrated ESD outcome for that project.

# 10 Project Proposals and Costing

One or more scheduled meetings / workshops (depending on the scale of the project) including:

- The building sponsor;
- The manager of the capital works department (or delegate depending on the scale of the proposal);
- The Council ESD / Environment Officers; and
- Other key stakeholders (e.g. open space/recreation, maintenance).

The outcome of the meetings is a Sustainable Design Assessment (SDA) for the building. This is a requirement for all building types, to be developed in partnership with the ESD Officer where appropriate.

# 11 Project Development

During handover to Facilities from Assets, the following information must be provided:

- What ESD budget and considerations have already been resolved;
- The Sustainable Design Assessment documentation (if completed early);
- Whether the project is to be an ESD showcase.

# 12 Project review and signoff

Council has a series of checkpoints to ensure that the ESD requirements have been adequately implemented in a project. This signoff is normally conducted by the ESD Officer, working with the Project Manager.

Targets and checkpoints for the project stages include:

- Preliminary ESD discussion complete
- Project Sustainable Design Assessment (SDA) completed
- Design Brief and Budget includes ESD allocation
- ESD requirements included in the architect / building services brief
- Detailed Design to integrate SDA commitments into the design; Pre tender design review to ensure that all ESD is included in project documentation (plans, specifications, detail drawings, contracts); Maintenance should also review the plans to ensure that the building is maintainable
- Building site management / checks to ensure builder compliance with ESD requirements
- Ensure that ESD requirements are achieved by builder before granting Practical Completion
- ESD documentation complete: Building operation guidelines / 3rd party certifications / Case Study
- Commissioning and handover process has been satisfactorily undertaken including Occupant Training
- Building Tuning has been undertaken at least quarterly for 12 months after practical completion.

# 13 Responsibilities during project design and construction

The following section contains project responsibilities once the project budget has been set and the project has been transferred to the program manager.

## Project Brief for architect and building services engineers

***Primary responsibility**: Project officer in conjunction with relevant stakeholders.*

An ESD requirements template has been included in Appendix B. This should be included in all project briefs to building designers such as design drafters, architects, building services engineers, landscape designers and ESD consultants.

The SMP should also be provided in the project brief.

Designers and consultants should ideally be asked to supply an *ESD return brief*, outlining how they will respond to ESD requirements, and to the targets set out in the SMP. The contractor's *ESD return brief* (if required) should be reviewed for adequacy when awarding design contracts.

## Detailed Design

***Primary responsibility**: Project Manager, Design Manager and ESD Officer with input from relevant stakeholders.*

The architect, drafters, landscape architect, and building services designers must ensure that the requirements in the SMP are being met through:

- Checking that the detail design has been completed to meet or exceed all ESD requirements set in the SMP;
- Meeting the sign off requirements for project documentation;
- Where possible include design review meetings with the Project Sponsor, ESD Officer; and
- Environmental Strategy Officer, the maintenance department and other relevant stakeholders.

It is critical that all sustainability features of the building are clearly and accurately documented in the building plans, specifications and working drawings / schematics before the project goes to tender. This will avoid project delays and higher costs during construction from rework and late contract variations.

## Tender Evaluation – Building / Trades Contractor ESD Selection Criteria

***Primary responsibility**: Project Manager/Design Manager/Project officer and other stakeholders where required.*

The primary method of ensuring that ESD is addressed by the contractor or builder is through including all ESD requirements in the project documentation (plans, specifications and detailed drawings).

ESD requirements should form part of the contractual basis for the project, with variation and rectification requirements stated clearly.

Background or reference checks on tenderers should include questions on ESD capability.

## Construction

***Primary responsibility**: Project Manager, Design Manager and ESD officer.*

Set checkpoints during construction to inspect that ESD is being installed as documented this must include as a minimum:

- When roughing in services;
- Pre plastering of the walls;
- Pre cladding of building;
- Spot checking of plant and materials on site (preferably before installation), such as window specifications, paint VOC levels and equipment/fitting efficiency ratings; and
- Before Practical completion is granted.

The main building contractor must check regularly that they and their subcontractors are complying with ESD requirements and specifications. Contracts should specify that any variation to the design or substitutions of plant or materials must receive prior approval from the project manager.

The contractor will be required to implement a basic environmental management process during construction. For projects over $1 million, this should be a formal construction Site Environmental Management Plan (SEMP) addressing the environmental impacts of the construction process.

## Project Commissioning and Handover – including building user education

***Primary responsibility**: Project Manager with ESD Officer and relevant stakeholders.*

Set checkpoint for ensuring that commissioning is as per the design specifications. Ensure that buildings occupants and operators are trained in building systems and that permanent instruction signage is installed.

As part of the contract of work for the design and commissioning of the building, a building users guide should be generated for Council maintenance staff and future users of that building that outlines the efficient use of the plant, fittings etc., of that building.

A copy of the following documents should be provided to the building occupants as well as the Council maintenance department:

- Design intent document (or SDA);
- Building user's guide;
- As built drawings;
- Maintenance manuals; and
- Commissioning checklists, reports and rectification details.

For lager projects a commissioning, handover and building tuning plan should be developed by the project manager, ESD consultant and designers.

## Building tuning and maintenance (during defect liability phase)

***Primary responsibility**: Project Manager working with Maintenance.*

Checkpoint for ensuring that plant etc. is being tuned and maintained as per the design specifications.

Building tuning is the process of ensuring that the building operates effectively in all seasons. A regular tuning process over the first 12 months of building operation is required to ensure that heating, cooling, natural ventilation and/or other building systems are working ***and working efficiently***. This should be undertaken during the 12 month Defects Liability Period (DLP) by the builder and subcontractors supervised by the Council Maintenance Staff.

## Building minor refurbishment and required maintenance on existing buildings

Council also operates many small facilities, including child care centres, community halls and sports pavilions. At many of these sites there will be opportunities to save energy and reduce greenhouse gas emissions.

Significant building refurbishments should comply with the requirement of this document as per new buildings. Refurbishments are a prime opportunity to improve the environmental performance of existing building stock.

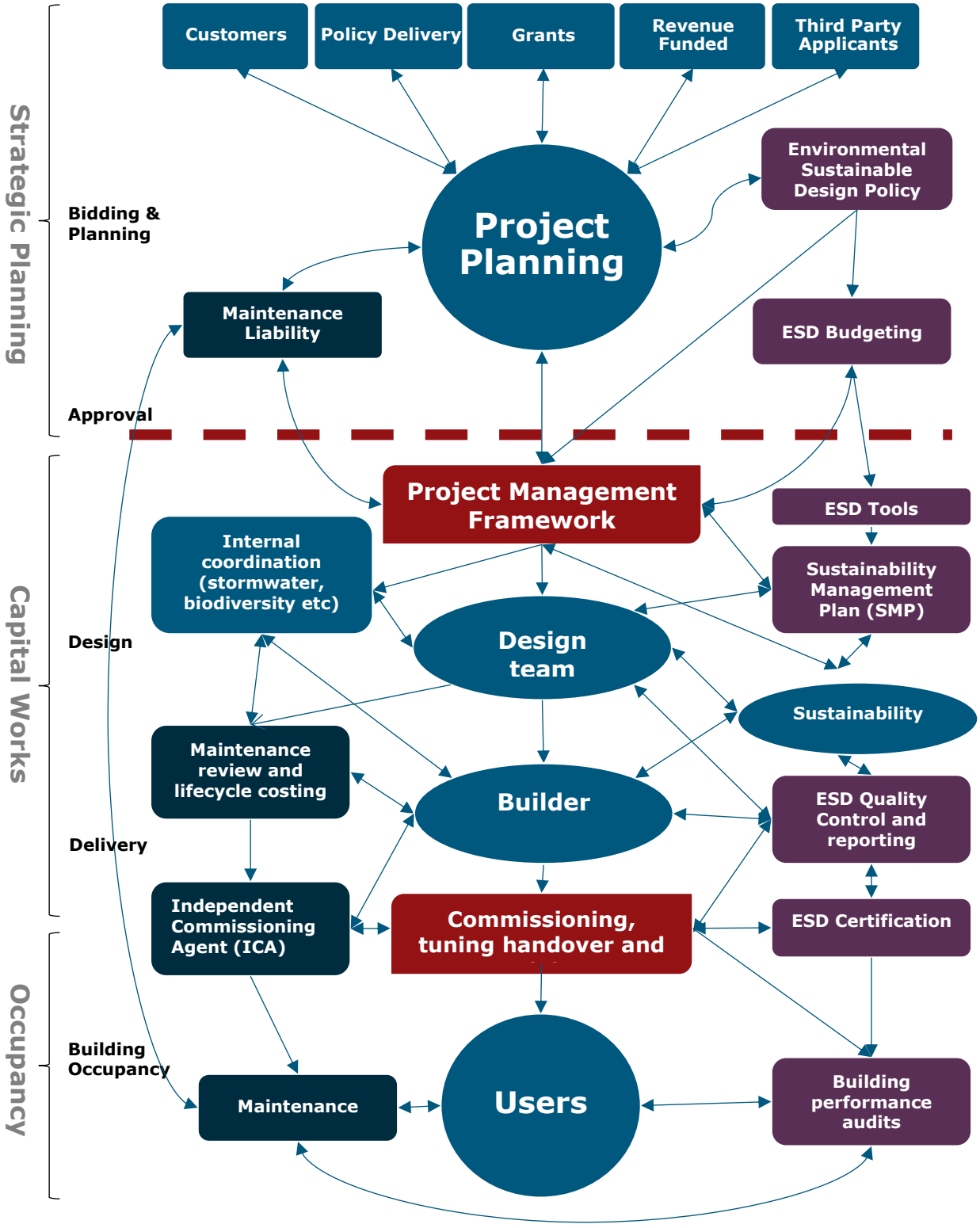
## Building Demolition

The project manager must ensure that waste from building demolition must be sent to a recycling facility (where it cannot be reused on site) rather than to landfill.

It is a legislated requirement that a hazardous materials assessment (including an asbestos survey) is undertaken before demolition (exceptions include simple shelters), and that any hazardous materials are removed and appropriately disposed of by licensed contractors before the building is demolished.

## General ESD Elements in a project

The chart below outlines general project stages and ESD elements, along with lines of communication.



# 14 Project Specific Requirements

There are many references and ESD toolkits available in the market, and many of them will have some relevance to Council projects. However, there is still no one third party leading and definitive green building tool that can be applied to all public buildings.

The following is an outline of toolkits that are to be considered for Council Buildings. A range of tools is used depending on building size and type. Larger projects require more involved and detailed project sustainability management initiatives.

## Additional requirements included in the policy

| Project cost | <$1mill | >$1mill | >$10mill | >$20mill |
|---|---|---|---|---|
| Require Sustainability Management Plan (SMP) for **buildings and Infrastructure** | Yes – short form Sustainable Design Assessment (SDA)<br>(also refer to Appendices) | Yes | Yes | Yes |
| SMP objectives and applicable toolkit for **buildings** | Meet relevant Environmental Sustainable Design (ESD) objectives and requirements as above plus: Council ESD checklists | Meet relevant ESD objectives and requirements as above plus:<br>BESS tool targeting Excellence or Green Star Buildings 4 Star (Uncertified, use to guide the SMP) | Meet relevant ESD objectives and requirements as above plus:<br>Green Star Buildings<br>4 or 5 Star (Uncertified, use to guide the SMP) | Meet relevant ESD objectives and requirements as above plus:<br>Green Star Buildings<br>5 or 6 Star (May be certified, use to guide the SMP) |
| SMP objectives and applicable toolkit for **infrastructure** | Meet ESD objectives and requirements where applicable and feasible. | Meet ESD objectives and requirements where applicable and feasible. | Meet ESD objectives and requirements where applicable and feasible.<br>Reference Green Star Communities tool Materials Credits. | Meet ESD objectives and requirements where applicable and feasible.<br>Infrastructure Sustainability (IS v 2) Design and As Built rating tool – Gold rating (Certified by ISCA). |
| Suitably qualified ESD professional appointed to the design team | Only if required to trial innovative approaches | Yes | Yes | Yes |
| Council to appoint an Independent Commissioning Agent (ICA) | Only if required to trial innovative approaches | Yes | Yes | Yes |

### Building Green Star scores

**GreenStar Scores:**

- **4 Star Green Star - Australian Best Practice**
- **5 Star Green Star - Australian Excellence**
- **6 Star Green Star - World Excellence**

Using toolkits allows for open-ended specifying of targets. This means that the design team and project manager will have a lot of flexibility on how a specific rating will be achieved. This can be good for capturing larger – higher profile – projects, but it can be difficult to translate these targets into "tangible" actions for small-to-medium sized council projects.

For example, there are no Green Star Certified pavilions. Indeed, Green Star certifying the majority of typical council pavilions would be overkill. As such, councils can opt for non-certified Green Star where appropriate, depending on the size of the project.

Using Green Star usually involves consultants/architectural teams proposing appropriate Green Star Credits to reach council's prescribed target. If Project/Design Managers are familiar with Green Star they can provide direction to consultants as to what is and isn't appropriate. However, detailed reviews will inevitably need to be conducted and these can be time consuming. Most project managers will expect help from an appropriately skilled officer within the sustainability team.

Council's minimum performance targets are contained in the policy document. These targets should be significantly increased where the project is being designated as an ESD showcase for Council.

# 15 Application of third-party tools and standards

## Council ESD Toolkit -> ESD Design Checklist

Council has developed an ESD Design Checklist to assist the project stakeholder, project manager and design team in considering aspects of these ESD requirements. This is included in Appendix A.

## NABERS

NABERS is a building benchmarking tool administered in Victoria by Sustainability Victoria. NABERS focuses on predicted and actual greenhouse gas emissions. NABERS has been used within the Green Star office tool to set greenhouse targets for buildings. It has limited scope for application to council buildings as it primarily focuses on residential and office buildings. Where it is applicable a minimum 4.5 to 5+ star NABERS rating should be targeted. Note that a NABERS score can be improved by including Green Power in the calculations, however, Council requires that buildings should also be designed to best practice efficiency levels to minimise operational energy costs.

NABERS can be used in existing buildings or new buildings to validate performance once the building has been in operation for 12 months.

## Green Star

Green Star is a comprehensive environmental rating system developed by the Green Building Council of Australia. While Green Star can be used for smaller buildings, it is more cost effective when used for larger projects (>$1million) due to the cost of the Green Star certification process.

Projects are welcome to use Green Star informally as an SMP. This is where the Green Star tool is used by Council during the concept and design process to set targets and track implementation of ESD

measures in the design.  This is not usually too onerous for smaller applicable projects.

Note that publicly claiming that a building has a Green Star rating requires a formal certification process from the Green Building Council of Australia.  If Green Star is used informally, then the building cannot publicly claim to be a Green Star building.

Formal certification should be sought for larger ESD Showcase buildings where Council wishes to publicly claim environmental excellence.

If applicable Green Star certification submissions should be submitted at the 80% design development stage.  This gives the project team time to make the design changes that will be required between round 1 and round 2 Green Star submissions.

## BESS

BESS is an online sustainability assessment tool developed by the Council Alliance for a Sustainable Built Environment (CASBE), an alliance of Victorian Councils working to improve the sustainability of the built environment, to assess the sustainability of building projects at the design stage. It is more suitable for residential development.

## Infrastructure Sustainability Tool (IS)

IS Rating Scheme is Australia and New Zealand's only comprehensive rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, projects, networks and assets.  IS evaluates the sustainability performance of the quadruple bottom line (Governance, Economic, Environmental and Social) of infrastructure development. Formal certification is only available for projects over $20 million in value. The framework can be used informally in developing SMP reports for smaller projects.

## Green Star Communities tool

The Green Star Communities tool is primarily for precinct / community design.  However, it has several industry recognised credits that are useful in infrastructure sustainability. This includes detailed specifications for best practice environmental initiatives, particularly in the area of Civil Construction materials (Credit 26). Also of value referencing is the Adaptation and Resilience credit. The Adaptation and resilience credit aims to encourage and recognise projects that are resilient to the impacts of a changing climate and natural disasters.

# 16 Summary of specific requirements for building and infrastructure

| Project / Program Type | Council Project Examples | Tools for undertaking Sustainability Management Plan (SMP) | Process and Review |
|---|---|---|---|
| **Infrastructure Projects** | Carparks, footpaths, roads, storm water | Infrastructure Sustainability (IS v 2) Design and As Built rating tool (by ISCA).<br>Green Star Communities tool – See Materials Credits | Internal Review including ESD Officer / External ESD Consultant input |
| **Small Buildings** | Toilets and Small Pavilions<br>Kiosks / Ticket Boxes<br>Depot buildings & Larger Sheds | *ESD Design Checklist* as applicable | Internal Review |
| **Special Purpose** | Pavilions<br>Childcare an d maternal and child health centres<br>Aged Care/senior citizens centres<br>Neighbourhood Houses | *ESD Design Checklist* as applicable<br>Green Star as applicable for larger projects in conjunction with the BCA | Internal Review including ESD Officer / External ESD Consultant input |
| **Large Projects** | Libraries<br>Community centres/halls<br>Aquatic Recreation centres<br>Sports Stadiums<br>Offices /Town halls<br>Larger Community Centres<br>Arts and entertainment centres | Set targets using Green Star / NABERS assessment<br>External ESD consultant appointed where applicable, including informal ESD ratings.<br>Consider Green Star certification where applicable and the building is an ESD showcase. | Internal Review including ESD Officer / External ESD Consultant input |
| **Other structures** | Sail and shade structures<br>Stores / Sheds<br>Shelters | *ESD Design Checklist*<br>Consider applicable opportunities such as materials, lighting efficiency, storm water, capturing rainwater etc. | Internal Review |
| **Minor refurbishment or end of life replacements** | Plant and equipment replacement, building maintenance, ESD retrofits | *ESD Design Checklist* as applicable | Internal Review |

# 17 Appendix A – Buildings Sustainability Management Plan (SMP)

## ESD Design Checklist for Small Buildings

**Purpose:** checklist to prepare the Sustainability Management Plan (SMP) to ensure minimum environmental (ESD) considerations have been included in the design. Use this checklist for small to medium council projects only. For larger projects the SMP should use tools such as Green Star.

| Project: | Competed By: | Date: |
|---|---|---|
| | | |

## Minimum ESD measures to include in buildings & renovations (where applicable)

| Ref | Objective | Targeted? Yes, No, N/A | ☑ QA Checked in design documentation | ☑ QA Checked As-Built | Comments |
|---|---|---|---|---|---|
| Ref | **Waste** | | | | |
| 1.1 | 70% of waste by weight recovered or recycled from demolition phase and construction phase | | | | |
| 1.2 | Design for waste separation/recycling for building users and suitable storage loading bays | | | | |
| Ref | **Water** | | | | |
| 2.1 | All showerheads to be minimum 3 Star WELS rated (and less than 7.5 L/min flowrate) | | | | |
| 2.2 | Waterless or minimum 4 Star WELS Urinals | | | | |
| 2.3 | All indoor taps and toilets to be minimum 5 Star WELS rated | | | | |
| 2.4 | Dishwashers' minimum 5 Star WELS rating and min 4 energy stars. | | | | |
| 2.5 | Washing machine minimum 5 Star WELS rating | | | | |
| 2.6 | Automatic shut-off nozzle for hoses and dishwashing | | | | |
| 2.7 | Upgrade existing building fittings to the above standards, using flow restrictors and other upgrades | | | | |
| 2.8 | Implement stormwater treatment on site to achieve 100 points in the Melbourne Water STORM calculator http://storm.melbournewater.com.au or the InSite water calculator www.insitewater.com.au | | | | |
| Ref | **Energy and Greenhouse** | | | | |
| 3.1 | Where applicable building should exceed BCA energy efficiency requirements by 40% | | | | |
| 3.2 | Glazing - Improvement on BCA requirements by 40% | | | | |
| 3.3 | Building Sealing - meet the requirements of BCA Section J3 | | | | |
| 3.4 | Air Movement - Meet BCA Section J4 requirements | | | | |
| 3.5 | HVAC - Improve on BCA section J5 targets by 40%. | | | | |

| Ref | Objective | Targeted? Yes, No, N/A | ☑ QA Checked in design documentation | ☑ QA Checked As-Built | Comments |
|---|---|---|---|---|---|
| | An all-electric approach to HVAC (no combustion of gas) should be taken. Optimise HVAC efficiencies in heating and energy use and minimising CO2 release. | | | | |
| 3.6 | Lighting - Improve on BCA section J6 targets by 40% | | | | |
| 3.7 | Specify high efficiency heat pump hot water system and insulate all piping to 40% better than BCA section J<br>Ring Mains must insulate to at least R2 | | | | |
| 3.8 | Use lighting to and power control devices as per BCA section J6 | | | | |
| 3.9 | Min 4 Star for all appliances and limit fridges required. Locate water appliances together near a water system to minimise heat loss in pipe run lengths | | | | |
| 3.10 | Building Fabric - Improvement on BCA Section J1 by 40% | | | | |
| 3.11 | Insulation in walls to greater than R2.5 (where feasible) | | | | |
| 3.12 | Insulation in ceilings to R5 | | | | |
| 3.13 | Insulation in suspended floors to R2.5 | | | | |
| 3.14 | Use passive solar design and natural light | | | | |
| Ref | **Indoor Air Quality** | | | | |
| Measures 4.1- 4.6 are mandatory for Early years and Child Care Centres (or similar use buildings) | | | | | |
| 4.1 | Avoid fibrous floor, wall and ceiling finishes in inhabited areas, supply or return air. | | | | |
| 4.2 | Use low Volatile Organic Compounds (VOC) or Water Based paints and water based adhesives | | | | |
| 4.3 | Natural Fibre or Low VOC Carpet only | | | | |
| 4.4 | All partitions, sealants, coatings, insulation etc., low VOC | | | | |
| 4.5 | Fresh Air and Natural Light - Improvement on BCA section F4 by 25% | | | | |
| 4.6 | Use low formaldehyde composite wood products | | | | |
| Ref | **Transport** | | | | |
| 5.1 | Secure bicycle parking for regular occupants is provided for 7.5% of total regular occupants, with associated end-of-trip facilities. | | | | |
| 5.2 | Safe pedestrian access and provision of maps and clear pedestrian routes to nearest public transport. | | | | |

| Ref | Objective | Targeted? Yes, No, N/A | ☑ QA Checked in design documentation | ☑ QA Checked As-Built | Comments |
|---|---|---|---|---|---|
| Ref | **Timber** | | | | |
| 6.1 | Specify suppliers that do not clear fell / wood chip old growth forest or rainforest | | | | |
| 6.2 | Avoid high toxicity materials such as CCA or Penta treated external timbers | | | | |

## Additional Environmental Measures

| Ref | Objective | Targeted? Yes, No, N/A | ☑ QA Checked in design documentation | ☑ QA Checked As-Built | Comments |
|---|---|---|---|---|---|
| Ref | **Waste** | | | | |
| 7.1 | Design for composting /worm farm facility on site | | | | |
| 7.2 | Select dimensions to suit standard material sizes where applicable to minimise wasted excess. | | | | |
| Ref | **Water Saving** | | | | |
| 8.1 | Capture and store rainwater for toilet flushing, laundry and irrigation | | | | |
| 8.2 | Install water meters to measure drinking water consumption and to detect leaks | | | | |
| 8.3 | Install greywater capture and reuse for sub-surface irrigation | | | | |
| 8.4 | Self-closing time (5 sec) activated taps (levered for disability access) | | | | |
| Ref | **Energy Saving** | | | | |
| 9.1 | Increase energy targets by a further 25% | | | | |
| 9.2 | Make use of existing infrastructure and building envelopes for redevelopment | | | | |
| 9.3 | Build least space required for purpose | | | | |
| 9.4 | Set wider building temperature range in consultation with users e.g. 19-26 (i.e. summer cooling temperature 26 degrees, winter heating temperature 19 degrees) | | | | |
| 9.5 | Use fans, shading, cross ventilation, low-e glass and /or thermal mass instead of air-conditioners for cooling | | | | |
| 9.6 | Highest practicable efficiency heating and cooling systems where required | | | | |
| 9.7 | Occupancy sensors / timers for lights and for Heating/Cooling systems. | | | | |

| Ref | Objective | Targeted? Yes, No, N/A | ☑ QA Checked in design documentation | ☑ QA Checked As-Built | Comments |
|---|---|---|---|---|---|
| 9.8 | Separate electrical metering and zoning | | | | |
| 9.9 | Double Glazing and/or low-e glass for windows with window frames selected for thermal performance | | | | |
| 9.10 | Use light coloured surfaces (walls, roof, paving etc.) to reduce heat and maximise natural light levels. | | | | |
| 9.11 | Optimise natural ventilation so that it does not conflict with space heating or cooling systems | | | | |
| 9.12 | Increase passive winter heating through larger, horizontal shaded northern windows and/or wintergardens and vertical shading to glazing on East and West facades. | | | | |
| 9.13 | Solar boosted heat pump hot water systems | | | | |
| 9.14 | Use daylighting through ceiling light pipes such as www.solatube.com.au | | | | |
| 9.15 | Electrical sub-metering to be provided for each major energy end use of the building | | | | |
| 9.16 | Install a tier 1 Solar PV system if the payback is less than 6 years. Installation must follow CEC guidelines and AS/NZS 5033, allow for remote monitoring and consider the use of non-penetrative fixings for rooftop PV. Incorporation of solar system, taking up most of the roof | | | | |
| 9.17 | Battery Storage: battery storage to be provided for resilience | | | | |
| 9.18 | Solar panels to be provided as a separate quote than the main building contract. | | | | |
| Ref | **Materials** | | | | |
| 10.1 | Salvage materials from an existing structure/project | | | | |
| 10.2 | Use flexible floor plan, column spacing and floor-to floor heights for many uses. | | | | |
| 10.3 | Design to standard dimensions (e.g. door heights) | | | | |
| 10.4 | Design for disassembly at end of project life. | | | | |
| 10.5 | Optimise use of recycled products | | | | |
| 10.6 | Use low-maintenance materials e.g. recycled rubber flooring or reconstituted concrete | | | | |
| 10.7 | Use materials that serve multiply purposes e.g. structural, thermal mass and finish | | | | |
| 10.8 | Specify environmentally innovative materials (e.g. geopolymers, rammed earth, natural paints) | | | | |
| 10.9 | Purchase locally where possible | | | | |
| 10.10 | Use materials that can be recycled at end of life | | | | |
| 10.11 | Use FSC certified Australian or New Zealand plantation timber | | | | |

| Ref | Objective | Targeted? Yes, No, N/A | ☑ QA Checked in design documentation | ☑ QA Checked As-Built | Comments |
|---|---|---|---|---|---|
| 10.12 | Use materials that can be joined mechanically rather than using adhesives | | | | |
| 10.13 | 38mm Airflex insulation to any ring mains. | | | | |
| Ref | **Transport** | | | | |
| 11.1 | Have secure undercover bike parking and visitor bike parking for high use buildings (AS AS2890.3) | | | | |
| 11.2 | Install shower and change facilities for cyclists & joggers | | | | |
| 11.3 | Give car-pool vehicles or bikes higher priority parking | | | | |
| Ref | **Other** | | | | |
| 12.1 | Interactive Information Display system at the area of the building indicating relevant information as listed in the ESD Specification manual. | | | | |
| 12.2 | Provide a Building Users Guide for building operators and management. | | | | |
| 12.3 | Presence and involvement of the ESD Officer/Consultant at building commissioning and fine tuning for a period of 12 months upon completion of the project. | | | | |

## Product Disclosures & Certificates from Building Contractor

| Ref | **Where the specification requests or requires certificates, reports or receipts, ensure that the certificates, reports or receipts are organised, collected and presented to the Project Delivery team.<br>Such documentation must be provided to the Superintendent on a monthly basis as the items are completed; unless otherwise stated.<br>The Superintendent shall circulate the documentation to Council's ESD Officer/Consultant for review.** | Targeted? Yes, No, N/A | ☑ QA Checked in design documentation | ☑ QA Checked As-Built | Comments |
|---|---|---|---|---|---|
| 13.1 | Recycling Waste Certificates -<br>Certificate from the relevant Transfer station, as well as, third parties such as Hello Bin Hire and Mobius Materials Recovery. Reports from third parties should be provided 3 monthly as a part of progress claims. | | | | |
| 13.2 | Green Concrete (Reduced Cement) Certificates -<br>Confirmation constituting the mix of concrete to warrant cement reduction. | | | | |
| 13.3 | Recycled Aggregate in Concrete Certificates -<br>Confirmation ensuring the percentage of recycled aggregate for concrete that is used in the project. The certificate should be issued by the Supplier. | | | | |

| Ref | Where the specification requests or requires certificates, reports or receipts, ensure that the certificates, reports or receipts are organised, collected and presented to the Project Delivery team.<br>Such documentation must be provided to the Superintendent on a monthly basis as the items are completed; unless otherwise stated.<br>The Superintendent shall circulate the documentation to Council's ESD Officer/Consultant for review. | Targeted? Yes, No, N/A | ☑ QA Checked in design documentation | ☑ QA Checked As-Built | Comments |
|---|---|---|---|---|---|
| 13.4 | Certified Steel -ACRS certified steel by third party independent certifier. | | | | |
| 13.5 | FSC Certified Timber -Documentation must also include chain of custody certificates. | | | | |
| 13.6 | Insulation Report/Certificate from insulation manufacturer. Ensure certification coincides with correct type on installation. | | | | |
| 13.7 | Air Infiltration Compliance Certificate -Ensure that the minimum air infiltration target is achieved, as well as, that the installation of materials shall meet air infiltration tests. | | | | |
| 13.8 | Energy Matrix Insulation Thermal Imaging Report Certificate -Ensure correct installation of all insulation. | | | | |
| 13.9 | All paints to be minimum low VOC / Zero VOC content with VOC stamped on receipt. | | | | |
| 13.10 | MPA Painting Certificate. | | | | |
| 13.11 | All joinery construction to be EO board as a minimum; aiming for zero formaldehyde. Relevant reports and product disclosure statements must be provided. | | | | |
| 13.12 | Utilise a sustainable paint clean up system to ensure that paint wash up does not allow effluent to flow into the sewer and that empty paint tins are returned for recycling. Provide documentation as to the setup and utilisation of the system endorsed and undertaken. | | | | |

# 18 Appendix B –Template for Infrastructure Sustainability Management Plan (SMP)

## Scope

An Infrastructure Sustainable Management Plan (SMP) is a detailed sustainability assessment of a proposed project or program of works. An SMP for infrastructure is a tailored document that addresses the Key Environmental Sustainable Design (ESD) Categories and demonstrates that a holistic ESD review has been undertaken during a project's early design stages.

It identifies beneficial innovative and best practice initiatives. The nature of larger projects and programs are that they provide 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. This template is designed to provide guidance on how to prepare an SMP report. The document outlines ESD issues, response guidelines and Key ESD Objectives.

## Project Information

The SMP should state the project of programs location and extent. It should outline the context that may impact on or may be impacted by the works. It is required to outline relevant areas, such as site permeability, water capture areas and impervious area of different areas. The SMP should describe the development's sustainable design approach and summarise the project's key ESD objectives.

## Environmental Objectives

The SMP is required to address each objective and demonstrate how the design meets these requirements. Suggested objectives are included in Council ESD Policy and should cover:

1. Greenhouse Gas Reduction
2. Water and Energy Efficiency
3. Stormwater Management
4. Materials
5. Transport
6. Waste Management
7. Urban Ecology
8. Climate Adaptation and Resilience
9. Innovation
10. Construction Environmental Management Plan
11. Commissioning, Tuning, Handover and Training
12. Ongoing Maintenance Plan and Liabilities

## Objectives and benchmarks

For each ESD objective the general intent, the aims and the purposes are explained. The SMP 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. Any cross references to other ESD toolkits are detailed and referenced.

## Issues and feasibility

This section comprises a list of topics that might be relevant within each objective. 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. A feasibility analysis should be included if needed for innovative approaches to cover issues such: as additional costs to be budgeted for, any supply constraints, any partnerships required, and additional time to be scheduled for research and development.

## Compliance with the objectives

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

## ESD in project documentation

Engineering drawings, schematics and specifications should reflect all relevant ESD matters where feasible. In addition, any architectural / landscape or other plans and specifications need to be adjusted to be consistent with the SMP.

SMP requirements need to be clearly stated in the RFT and tender documentation with the construction contractor.

# Further Information

## Glossary

**BESS:** an online sustainability assessment tool developed by the Council Alliance for a Sustainable Built Environment (CASBE), an alliance of Victorian Councils working to improve the sustainability of the built environment, to assess the sustainability of building projects at the design stage. http://bess.net.au/

**BPEM**: Best Practice Environmental Management Guidelines for Stormwater – administered by EPA Victoria.

**Environmentally Sustainable Design (ESD):** Building design that seeks to improve performance, reduce environmental impacts, resource use and waste and create healthy environments for occupants. Also called **Sustainable Development** or **Economic and Environmentally Sustainable Design (EESD)**

**Green Star:** Developed by the Green Building Council of Australia (GBCA), buildings can be Green Star certified for the environmental sustainability of their construction (Design and As-Built tool); fit outs (Interiors tool) and their operational performance (Performance tool). Buildings are accredited through an assessment by a third party and can achieve between a 4-6 star accreditation.

**Independent Commissioning Agent (ICA):** A role that can be filled by one or more people who are appointed by, and report directly to, Council. They are independent of any contractor, sub-contractor or consultant who has been involved in the design or installation of the nominated building systems. They are a registered professional engineer or qualified technician with demonstrated knowledge on mechanical, electrical, hydraulic and ESD systems commissioning.

**Integrated Water Management (IWM) and Water Sensitive Urban Design (WSUD):** An holistic approach to water management that integrates urban design and planning with social and physical sciences in order to deliver water services and protect aquatic environments in an urban setting. A WSUD approach could include the integration of raingardens, infiltration, water harvesting and wetlands in an urban area to manage stormwater.

**Infrastructure Sustainability Tool (IS)** - IS Rating Scheme is Australia and New Zealand's only comprehensive rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, projects, networks and assets. IS evaluates the sustainability performance of the quadruple bottom line (Governance, Economic, Environmental and Social) of infrastructure development. Formal certification is only available for projects over $20 million in value. The framework can be used informally in developing SMP reports for smaller projects.

**Lifecycle cost:** The total cost of an asset throughout its useful life taking account of the planning, design, construction, acquisition, operational, maintenance, rehabilitation, and disposal costs.

**Sustainable Design Assessment (SDA):** A simple sustainability assessment for **small** projects that documents how a project will address sustainability objectives, targets and standards.

**Sustainable Management Plan (SMP):** A detailed sustainability assessment for **larger** projects that documents how a project will address sustainability objectives, targets and standards and how the performance outcomes will be achieved. The SMP must also provide a schedule for implementation, ongoing management, maintenance and monitoring and how the ESD elements and practices can be maintained over time.

## Policy and legislation references

***Relevant Legislation***

- Local Government Act 1989 – Objectives of a Council (SECT 3C)
- Environment Protection Act 1970
- SEPP (Waters) – State Environmental Protection Policy outlining Council water and stormwater quality responsibilities.
- Recycling Victoria Policy 2020

***Related Council Policies***

- Environment Sustainability Strategy 2016-2026
- Procurement policy
- Contract Management policy

***Related State and Local References***

- Integrated Water Management Framework for Victoria 2017
- Victorian Planning Provisions (VC154 amendments – Stormwater Management) 2018
- Local Planning Policies – Environmentally Sustainable Development

***International Agreements***

- This policy has been assessed against and complies with the Charter of Human Rights.
- This policy assists in achieving elements of the UN Sustainable Development Goals

## References relevant to the Policy

- **Beyond Zero Emissions (BZE),** Buildings Plan: https://bze.org.au/research/energy-efficient-buildings-plan/ and Zero Carbon Cement Plan: https://bze.org.au/research/manufacturing-industrial-processes/rethinking-cement/
- **Australian Carpet Certification Scheme**, Carpet Institute of Australia, www.carpetinstitute.com.au
- **Ecospecifier**, www.ecospecifier.com.au/ building materials and products certification,
- **Energy Star Labelling** www.energyrating.gov.au/ appliance Energy Rating,
- **Forest Stewardship Council (FSC)**, Public certificate search, http://info.fsc.org/certificate.php
- **Global Green Tag**, www.globalgreentag.com/ building materials and products certification,
- **Green Star Design and As-Built tool** (used for buildings), http://new.gbca.org.au/ Green Building Council of Australia (GBCA)
- **Green Star Communities tool**, http://new.gbca.org.au/ (used for precincts and infrastructure) Green Building Council of Australia (GBCA)
  **Green Environmental Choice Australia**, www.geca.org.au/
- **ISCA IS Design and As Built rating tool** Infrastructure Sustainability Council of Australia www.isca.org.au/
- **National Construction Code (NCC)** https://ncc.abcb.gov.au/ Australian Building Codes Board
- **WELS Water Rating product labelling:** Water Efficiency Labelling and Standards (WELS) Scheme, www.waterrating.gov.au/