

# Environmentally Sustainable Design Building Policy

**Version:** 1.1

**Date:** 2 April 2019

**Responsible Department:** City Planning

## 1. Purpose

The purpose of the Environmentally Sustainable Design (ESD) Buildings Policy is to manage the social, environmental and financial aspects of Council Buildings. The Policy facilitates a coordinated approach to the management of buildings and provides a clear commitment to achieve sustainability standards in Council buildings.

## 2. Definitions

<b>Council</b>	means Casey City Council, being a body corporate constituted as a municipal Council under the Local Government Act 1989.
<b>Councillors</b>	means the individuals holding the office of a member of Casey City Council.
<b>Council officer</b>	means the Chief Executive Officer and staff of Council appointed by the Chief Executive Officer.
<b>Environmentally Sustainable Design (ESD)</b>	<p>Environmentally Sustainable Design (ESD) aims to provide for the needs of present generations without compromising the ability of future generations to meet their own needs.</p> <p>ESD integrates building technologies, materials and methods that promote high performance, economic vitality, ecological values and environmental quality, and social benefit through the design, construction and management of the built environment.</p> <p>ESD includes the following broad topics: efficient management of energy and water, management of materials and waste, protection of environmental quality and ecological values, protection of health and indoor environment quality, and reinforcement of natural systems in an integrated design approach.</p>

<b>Green Star</b>	Green Star is an internationally-recognised sustainability rating system that assesses the sustainability of projects.  The rating system encourage leadership in environmentally sustainable design and construction, showcase innovation in sustainable building practices, and consider occupant health, productivity and operational cost savings.
<b>National Australian Built Environment Rating System (NABERS)</b>	National Australian Built Environment Rating System (NABERS) is an initiative by the government of Australia to measure and compare the environmental performance of Australian buildings and tenancies.
<b>Nationwide House Energy Rating Scheme (NatHERS)</b>	Nationwide House Energy Rating Scheme (NatHERS) is a performance-based rating system that describes the energy performance of a building.

### 3. Scope

The policy applies to all new Council buildings and facilities, and existing buildings that require renewal, upgrade or refurbishment.

The policy will provide clear objectives, guidance and tools for use by building and facility project managers, designers, architects, engineers and building contractors for all new builds, renewal, upgrade and refurbishment projects.

### 4. Context

#### 4.1. Organisational Context and Alignment

This policy is strategically linked to the following:

- Council Vision
- Council Plan 2017 - 2021
- Strategic Resource Plan
- City of Casey Sustainability Plan
- City of Casey Emissions Management Plan
- City of Casey Integrated Water Management Plan
- City of Casey Biodiversity Strategy
- City of Casey Waste Management Strategy

This policy aligns with the UN Sustainable Development goals, the Energy Efficiency Council's *Save Energy, Grow the Economy Policy Priorities for an Energy Efficient Australia*, and international commitments to cut greenhouse gas emissions, and addresses the projected impacts of climate change.

The policy is consistent with the City of Casey's commitment to Victoria's *TAKE2 Pledge* which is a State Government collective climate change program supporting Victoria in achieving net zero emissions by 2050. The policy supports the City of Casey's long-term goal of being carbon neutral by 2040 and vision to create *Australia's Most Liveable City*.

## 4.2. Drivers for the Policy

### Efficient buildings and facilities

Providing investment, performance guidelines/standards and commissioning for Environmentally Sustainable Design (ESD) has a significant positive long-term impact on building performance. This maximises operational, maintenance and building cost savings.

### Financial resilience

Investment in ESD improves efficiency and reduces operational and maintenance costs. This ensures that Council is resilient to utility price rises in the future. This approach extends the asset life and minimises the projected impacts of climate change on facilities.

### Environmental integrity

Council has demonstrated corporate, social and environmental responsibility and leadership through the successful implementation of numerous environmental and sustainability initiatives. The Policy aligns to Council's commitment to reduce emissions and increase its use of renewable energy to become carbon neutral by 2040. In addition, it aligns to Council's commitment to improve water efficiency and waste management, and enhance its local biodiversity, natural habitats and landscape value.

### Health and well-being

The projected impacts of climate change can impact many areas of health and well-being. The Policy supports improved comfort, health and wellbeing outcomes for building users and the liveability of surrounding public places. This is in-line with the *Victorian Climate Change Act 2010* and the City of Casey's Municipal Public Health and Wellbeing Plan.

## 5. Policy

### 5.1. Objectives

The objectives of the policy are:

#### **5.1.1. Building Design**

New buildings and renewal, upgrades and refurbishments will be designed to meet the following minimum standards:

1. New buildings greater than 800m<sup>2</sup> will be equivalent to a 5 Star Green Star *Design and As Built* rating.
2. Extension and upgrade works greater than 50% of the build area will be equivalent to a 5 Star Green Star *Design and As Built* or *Interiors* rating.
3. All new buildings, renewals, upgrades and refurbishment works will meet the *Best Practice Sustainable Aspiration Level* of the South East Council's Climate Change Alliance (*SECCCA ESD Matrix Tool*).

#### **5.1.2. Building Performance**

All new buildings must meet and maintain:

1. Offices
  - The energy intensity of all new office facilities is equivalent to at least 4.5 Star *NABERS in operation* for whole of building energy consumption.
  - The potable water intensity of all new facilities is equivalent to at least 5 Star *NABERS in operation* for whole of building water consumption.

2. Aquatic Leisure Centres
  - The energy intensity of all new aquatic leisure centres is <10GJ/m<sup>2</sup> of pool surface area per annum in operation for whole of building energy consumption.
  - The potable water intensity of all new aquatic leisure centres is <12kL/m<sup>2</sup> of pool surface area per annum in operation for whole of building water consumption.
3. All other buildings
  - The energy intensity of all new other facilities is equivalent to at least 5 Star *NatHERS* in operation for whole of building energy consumption.
  - The potable water intensity of all new facilities is equivalent to at least 5 Star *NABERS* in operation for whole of building water consumption.

## 5.2. Policy Requirements

### Environmentally Sustainable Design Requirements

In-line with Council's Project Management Framework (PMF) the inception, planning, design, construction, installation, maintenance, monitoring and evaluation requirements for this Policy are set out below.

All Policy requirements will be incorporated into Council's Project Management Framework (PMF).

The Policy requires new builds greater than 800m<sup>2</sup> and all extension and upgrade works greater than 50% of the build area be designed to at least a relevant 5 Star Green Star rating.

All new buildings, renewals, upgrades and refurbishments are required to meet the *Best Practice Sustainable Aspiration Level* of the *South East Council's Climate Change Alliance (SECCCA) ESD Matrix Tool*.

This tool provides minimum design elements for implementing sustainable design principles in new and existing buildings to achieve high performance outcomes. Meeting the *Best Practice Sustainable Aspirational Level* is required to support the performance objectives.

*NOTE: Where the SECCCA's ESD Matrix Tool is not able to provide the performance objectives required, additional ESD initiatives may be required in the project design.*

All internal building and facilities construction, renewal, upgrade and refurbishment projects will apply this Policy from project conception to ensure that initial project scope and budget preparation can meet the Policy objectives.

### ESD (Buildings) Consultation Group

The Consultation Group is responsible for the delivery, implementation and reporting of environmentally sustainable design to ensure that ESD Building Policy requirements are met.

For all new Building and Facilities Projects >800m<sup>2</sup> and extension and upgrade works greater than 50% of the build area the Group will review and contribute to design concepts to achieve a high-quality design result in keeping with the policy objectives.

The Team Leader Building Design or their nominee will appoint an Independent Commissioning Agent (ICA) and Environmental Sustainability Design (ESD) consultant into the Consultation Group (unless otherwise agreed by the Consultation Group).

ESD (Buildings) Consultation Group must include:

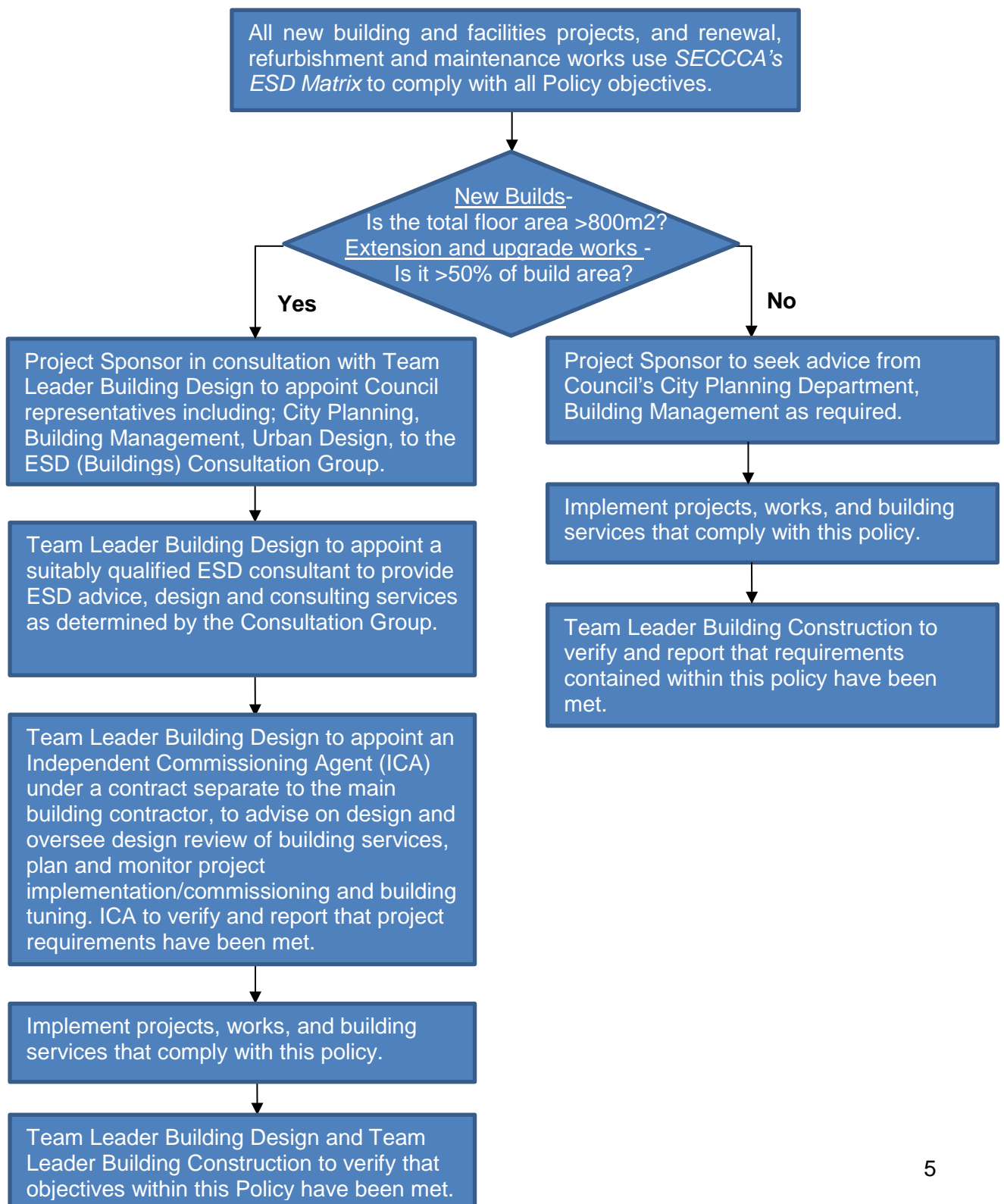
- Project Manager
- City Planning Representative

- Building Management Representative
- Urban Design Representative
- Independent Commissioning Agent
- Independent ESD Consultant

### 5.3. ESD Building Policy Process

The Managers of City Planning, City Design & Construction and City Presentation are accountable for overseeing the successful implementation of this Policy.

The following process is to be implemented for the delivery of all Building Planning, Construction and Maintenance Projects.



## 6. Responsibility

The Policy applies to all Council officers and the contractors responsible for financing, planning, designing, developing, constructing, renovating and managing Council-owned buildings and facilities.

## 7. Administrative Updates

It is recognised that, from time to time, circumstances may change leading to the need for minor administrative changes to this document. Where an update does not materially alter this document, such a change may be made administratively. Examples include a change to the name of a Council department, and a minor update to legislation with no material impact. However, any change which materially alters this document must be by resolution of Council.

## 8. Review

The next review of this document is scheduled for completion 18 months from adoption of the Policy. This will follow an evaluation of building performance against Policy objectives undertaken by City Planning. This will involve a review of design and performance ratings for *Green Star*, *NABERS* and *NatHERS* to ensure it aligns with Council's requirements.

The *SECCCA ESD Matrix Tool* design elements will be reviewed and revised at a frequency chosen by SECCCA, depending upon technological advances.

## 9. Related Council documents

- Council Plan 2017 - 2021
- Strategic Resource Plan
- City of Casey Sustainability Plan
- City of Casey Emissions Management Plan
- City of Casey Integrated Water Management Plan
- City of Casey Biodiversity Strategy
- City of Casey Waste Management Strategy

## 10. References

Energy Efficiency Council *Save Energy, Grow the Economy. 2016-17 policy priorities for an energy efficient Australia.* (2016)

Energy Efficiency Council and Government Property Group (2011). *National Framework for Sustainable Government Office Buildings.*

Council of Australian Governments (July 2009) COAG Meeting - *Dealing with Climate Change through Energy Efficiency.* [www.coag.gov.au/node/66](http://www.coag.gov.au/node/66) Accessed 25 July 2016.

Department of the Environment and Heritage. *ESD Design Guide for Australian Government Buildings.* (June 2005).

Department of Sustainability and Environment (July 2003) *Environmentally Sustainable Design and Construction: Principles and Guidelines for Capital Works Projects.*

Organisation for Economic Co-operation and Development (OECD). (2003) *Environmentally Sustainable Buildings: Challenges and Policies. A report by the OECD.*

## APPENDIX 1 – BENEFITS TO COUNCIL

The Environmentally Sustainable Design (ESD) Building Policy will build on experience to deliver a range of improved outcomes and benefits to Council, the community and the environment including:

### Economic benefits:

- Lowers operating and maintenance costs through efficiency improvements
- Future proofs assets and increases return on investments
- Manages the financial risks of rising utility prices
- Improves financial performance through a whole-of-lifecycle approach to managing Council buildings
- Provides a competitive advantage when applying for grants and funding opportunities
- Provides a more productive and attractive community buildings and facilities and workplaces

### Environmental benefits:

- Reduces demand for limited and non-renewable resources such as energy, water, materials and fossil-fuel based energy
- Reduces greenhouse gas emissions, pollution, toxic by-products and waste production
- Improves water management
- Improves biodiversity and habitat
- Reduces the impact of significant storm events and flooding

### Social benefits:

- Ensures Council buildings are more resilient and comfortable
- Creates a healthier, more resilient built environment for community uses
- Creates healthier spaces for community members and staff
- Demonstrates Council's corporate social responsibility and leadership on sustainability and environmental issues
- Responds to the projected impact of climate change to reduce heat stress and urban heat island effect

## APPENDIX 2 – CASE STUDIES DEMONSTRATING THE BENEFITS OF THE POLICY

The following case studies demonstrate how the City of Casey has achieved significant financial, and environmental benefits through the implementation of capital works projects that were aligned to the Emissions Management Plan and Integrated Water Management Plan.

### Case Study 1. Selandra Community Hub

Selandra Community Hub represents a significant improvement in environmentally sustainable design relative to similar facilities and demonstrates the need for evidence based integrated design. Currently energy use costs are \$73 per annum at Selandra Community Hub (May 2018), compared to \$36,000 per annum at Lynbrook Community Centre (November 2017).

### Case Study 2: Casey Aquatic and Recreation Centre (ARC) circulation motors upgrade

Casey ARC circulation motors were upgraded in 2015 to optimise efficiencies. These motors have a high load operating 24 hours per day and 7 days per week. The payback on the upgrade was 1 year and saved \$80,000/year which included the provision of a spare motor so preventative maintenance can be undertaken without closing the pools. Greenhouse gas emissions were reduced by 350 tonnes per annum. This upgrade has contributed to a 28% reduction in electricity consumption at Casey ARC since 2012 and reduced maintenance costs.

### Case Study 3: Casey Light Emitting Diode (LED) High Bay Upgrade Projects

The upgrade of high bay lights at the Cranbourne Indoor Leisure Centre, Cranbourne Skate Park, Casey RACE and Casey ARC have reduced recurrent lighting costs by 30-55%. The retrofits have a payback of 3-5 years. Importantly, the lighting quality has improved significantly and meets all appropriate and relevant sport lighting standards. Greenhouse gas emissions have been reduced by 400 tonnes per annum from these projects.

### Case Study 4: Economy Cycle Retrofits on Heating, Ventilation and Air Conditioning (HVAC) Units

Operational energy and cost savings have been achieved from retrofitting fresh air economy cycle on Packaged Air Conditioners at the Endeavour Hills Leisure Centre, Casey Fields VFL Pavilion and Casey ARC. Energy use has reduced by 70% and \$6,600 per PAC unit/annum is now saved. Economy cycle has a payback of 2.3 years as a retrofit however is substantially shortened to 1.7 years if undertaken in the building construction phase.

### Case Study 5: Casey Leak Detector Installation Program

The installation of Leak Detectors at the Webb Street Public Toilet Block has virtually eliminated unnecessary water wastage through leaks and taps being left on. Over 0.5 million litres of water are saved per annum at this toilet block as a result of the retrofit. Water costs have been reduced by 48% since this installation. This retrofit had a payback of less than 5 years.



### APPENDIX 3 – ROLES AND RESPONSIBILITIES

Roles and responsibilities for implementing this policy are outlined below.

Party	Role
<p><b>Project Sponsor</b></p> <p>Responsible for developing the project concept</p>	<ul style="list-style-type: none"> <li>• When planning the project (i.e. project mandate and business case development) develop a project brief which identifies all items from <i>SECCCA's ESD Matrix</i> that fall within the project scope. Ensure all recommended high-performance design elements are within scope of the budget bid.</li> <li>• For new builds (greater than 800m<sup>2</sup>) and all extension and upgrade works (greater than 50%) of the build area, request that a City Planning representative and a Building Management representative and the Team Leader City Design &amp; Construction/Project Manager determine the scope and associated costs.</li> <li>• Appoint the ESD (Buildings) Consultation Group.</li> <li>• For minor projects (less than 800m<sup>2</sup>), request that a City Planning representative and a Building Management representative provide advice on the project.</li> </ul>
<p><b>Team Leader City Design &amp; Construction / Team Leader Building Construction</b></p> <p>For capital works implementation</p>	<ul style="list-style-type: none"> <li>• For new builds (greater than 800m<sup>2</sup>) all extension and upgrade works (greater than 50%) of the build area, engage an Independent Commissioning Agent (ICA) and an Independent ESD consultant.</li> <li>• For all smaller new builds, renewals, upgrades and refurbishments if required, seek advice from the nominated City Planning representative and a Building Management representative.</li> <li>• Implement projects, works, and building services in compliance with the Policy.</li> <li>• Seek advice from the nominated representatives on the following: <ul style="list-style-type: none"> <li>- Specifications and technical notes</li> <li>- Design review</li> <li>- Tender document development to include the minimum requirements as identified from the <i>SECCCA's ESD Matrix</i> <u>to achieve the necessary design objectives</u>.</li> <li>- Tender review (for high performance elements).</li> <li>- Build phase (high performance elements) e.g. hold points and checks, return brief, deviations from specifications, completed related works.</li> </ul> </li> </ul>
<p>City Planning</p>	<ul style="list-style-type: none"> <li>• Nominate a representative on request by the Project Sponsor or Project Manager.</li> <li>• Support the implementation of projects that comply with the ESD Buildings Policy on request by the Project Sponsor and/or Project Manager.</li> <li>• Support the implementation of works that comply with the ESD Buildings Policy by advising Panel Contractors on request.</li> </ul>

<p>Building Management</p>	<ul style="list-style-type: none"> <li>• Nominate a representative on request by the Project Sponsor or Project Manager.</li> <li>• Support the implementation of projects that comply with the ESD Buildings Policy on request by the Project Sponsor and/or Project Manager.</li> <li>• Support the implementation of works that comply with the ESD Buildings Policy by advising Panel Contractors on request.</li> </ul>
<p>Urban Design</p>	<ul style="list-style-type: none"> <li>• Nominate a representative on request by the Project Sponsor or Project Manager.</li> <li>• Support the implementation of projects that comply with the ESD Buildings Policy on request by the Project Sponsor and/or Project Manager.</li> <li>• Support the implementation of works that comply with the ESD Buildings Policy by advising Panel Contractors on request.</li> </ul>

#### APPENDIX 4 – TECHNICAL INFORMATION – USING SECCCA'S ESD MATRIX

The policy is supported with the use of the *SECCCA ESD Matrix Tool*, which provides the minimum requirements for implementing sustainable design principles in new building projects and in significant refurbishment projects. These standards are deliberately specific; they are written for direct insertion into tender specification documents as required.

The intention of this policy is not that the project scope be extended to incorporate all the minimum requirements, but rather that opportunities are taken advantage of where they exist.

The implementation and use of the *SECCCA ESD Matrix Tool* will ensure that the policy requirements, indicators, objectives and targets of the policy are met to support achieving all objectives.