

Environmentally Sustainable Design Policy Guidelines for Council Buildings

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Responsible Service Areas: Assets, Integrated Planning, Engineering

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1. Introduction

The *ESD Policy Guidelines for Council Buildings and Infrastructure* (Guidelines) are to be used to support the implementation of the *ESD Policy for Council Buildings and Infrastructure* (ESD Policy). The Guidelines are to be used for building projects, including surrounding assets, and for infrastructure projects. For each project, they are to be implemented as follows:

- a. Follow steps in Section 3. **Process & Governance** and the Procedural Flowchart within the ESD Policy to guide inclusion of ESD in projects.
- b. Use the **Policy Position** table (Section 2) to identify required ESD target based on the project size or budget and the required tool and sustainability standard to be achieved
- c. ESD response is to be guided by the ESD Policy objectives
- d. Use the **ESD Checklist** (Section 4) and the ESD Policy objectives to guide the appropriate ESD response.
- e. Reporting on implementation of ESD Policy and Guidelines is to be informed by Section 5. **Measuring our progress.**

2. Policy Position

As identified in Council’s *ESD Policy for Council Buildings and Infrastructure*, our policy position is: *The requirements, standards and tools in the following table, should be applied to all Council building and infrastructure projects, and developed in conjunction with the ESD Policy Guidelines for Council Buildings and Infrastructure.*

Table 1: Minimum triggers for ESD tools and standards*

Project type	Project size or budget	Report requirement at design stage	ESD Target and applicable tools-/standards
Building - New	Over \$5 million	Sustainable Management Plan (SMP)	Minimum 5 Star certified rating under a current version of the Green Star - Design & As Built rating tool
	\$3-5 million	SMP	Minimum 5 Star equivalent rating under a current version of the Green Star - Design & As Built rating tool
	\$1-3 million	SMP	Minimum 4 Star equivalent rating under a current version of the Green Star - Design & As Built rating tool or Built Environment Sustainability Scorecard (BESS) excellence
	Under \$1 million	Sustainable Design Assessment (SDA)	BESS best practice – excellence
Building - Renewal/ renovation	>70% change to gross floor area (GFA), or >\$1 million	SDA	BESS excellence
	30-70% change to GFA, or <\$1 million	SDA	BESS best practice - excellence
Building - Fit outs			Meet the requirements set out in the <i>ESD Policy Guidelines for Council Buildings</i> for the following: <ul style="list-style-type: none"> Water Efficiency Labelling and Standards (WELS) scheme specified for water efficient appliances, fittings and fixtures Energy Rating Label specified for electrical appliances Guidance from the materials section
Infrastructure	<\$500,000		ESD Checklist where applicable and feasible
	\$500,000-2.5 million	ESD Checklist	Meet sustainability objectives/best practice and ESD Checklist where applicable and feasible Reference Green Star Communities Tool Materials Credits
	Over \$2.5 million	SMP	Reference Green Star Communities tool - Materials Credits, and Infrastructure Sustainability rating tool where appropriate and feasible Infrastructure Sustainability (IS v 2) Design and As Built rating tool - Gold rating (certified by ISCA) for projects over \$20 million.

*Note: Other triggers for ESD tools and standards could include any requirements specified in adopted masterplans and structure plans

2.1 Report requirement at design stage

An integrated approach to ESD in buildings is required to assess sustainability options early in the project planning stage. This is to determine the ESD priorities relative to building type, use and site and to identify multiple benefits that can be achieved through the project.

Prior to the development of a Sustainable Management Plan (SMP) options for ESD inclusions should be considered by the Project Working Group. This is to include site specific ESD options that indicates effectiveness/benefits and costs to assist Council with decision making for final design.

Sustainable Design Assessment (SDA)

At design stage, new building, renewal, and infrastructure projects under \$1 million require an SDA. The SDA is a *simple* sustainability assessment and must indicate how the project will address the sustainability objectives, targets and standards of the ESD Policy and Guidelines.

Sustainable Management Plan (SMP)

At design stage, new buildings over \$1 million require an SMP. The SMP is a *detailed* sustainability assessment and must indicate how the project will address the sustainability objectives, targets and standards of the ESD Policy and Guidelines. 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.

Infrastructure SMP reports must consider sustainable construction materials, procurement, construction environmental management, biodiversity enhancement opportunities, and integrated water management.

2.2 Tools and Standards

The ESD guidelines and standards specified in table 1 are minimum requirements and should not preclude projects from achieving a higher standard where significant additional environmental, financial, or social benefits can be realised. Larger projects will generally have greater opportunities for positive environmental outcomes and resource savings.

Green Star

Green Star is a comprehensive environmental rating system developed by the Green Building Council of Australia. Green Star Certified buildings can be designed and constructed with typical payback periods between three to seven years. 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.

Where a Green Star equivalent standard is specified, Council's Guideline requirements are to be used in conjunction with the current version of the Green Star – Design & As Built rating tool and Submission Guidelines, with the SMP indicating how the standard will be achieved.

Where Green Star certification is specified, the necessary process to achieve certification must be followed. 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.

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.

Green Star 4 (Australian Best Practice), 5 (Australian Excellence) and 6 Star (World Excellence)

BESS

The Built Environment Sustainability Scorecard (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. Where the BESS standard is targeted, a BESS report must accompany the SMP. The BESS overall score is determined by the category scores, factoring in the weighting of each category.

‘Best practice’ is defined within BESS as an overall score of 50% or higher.

‘Excellence’ is defined within BESS as an overall score of 70% or higher.

Infrastructure Sustainability (IS) Tool

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

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), and the Adaptation and resilience credit aims to encourage and recognise projects that are resilient to the impacts of a changing climate and natural disasters.

3. Process Management & Governance

This section of the guidelines, and the project management requirements checklist (Appendix 1) facilitates the implementation of the Policy Procedural Flowchart. It details the main points within a building or infrastructure project where ESD considerations are required. It is to facilitate holistic inclusion of ESD and document the decision-making process. This is the preferred approach to implementation however roles and responsibilities may differ project to project.

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 satisfactorily undertaken including Occupant Training; and
- Building Tuning undertaken at least quarterly for 12 months after practical completion.

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
- 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.

Managing costs of green buildings

Current international studies clearly demonstrate that there is little correlation between environmental performance and final delivered cost. 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 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. For larger buildings around 5% to 15% of the project budget should be allocated to incremental ESD costs, varying on whether the building is intended to be an ESD showcase. 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 smaller projects an ESD budget of 5% to 15% of the capital works project budget should be allocated for incremental ESD costs. This ESD allocation should be considered as an investment (not an impost) that will return benefits over the life of the building.

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.

The 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 many trends that are making ESD easier to achieve/justify due to a range of factors. These include:
 - 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;
 - Lowering of capital cost of technologies such as water tanks and solar photovoltaic prices as manufacturing processes and technologies mature;
 - Increases in competition making ESD products and services more mainstream and affordable.

If severe budget constraints are present, a simple low cost ESD approach may need to be taken. 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 traded-off with other building features during the design phase, where leverage over final outcomes is greatest: for example, trading off large areas of glazing, a complex building footprint or a large foyer, for energy efficient double glazed facades, operable external sun shading and solar power.

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.

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 the purpose it is intended for.

Consideration of Building End Users and Operators

Integration and usability of ESD components is important to ensure the feature will be used and maintained. This requires having to consider occupants and training (or fully automatic systems). A stakeholder engagement process may be required.

3.1 Roles and responsibilities

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.

A copy of the policy and/or ESD Checklist template should be included in all project briefs to building designers such as design drafters, architects, building services engineers, landscape designers and ESD consultants. The expectations of and requirements for an SDA/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, designers 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, 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/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). The extent to which ESD requirements have been addressed should form a key part of the tender evaluation, and 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, and ESD officer.

Set checkpoints during construction to inspect that ESD is being installed as documented and 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, lighting design and specification 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 building 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 larger 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.

4. ESD Requirements

The ESD Checklist ([20/238382](#)) is to be used as a guide to identify the ESD inclusions and considerations for each project in order to demonstrate adherence to the ESD Policy. The ESD Checklist can be used to supplement the SMP or SDA developed during the project scoping, and design phases. The ESD approach will be relative to the location, use and size of the building or infrastructure project. At the project planning stage priorities and requirements for individual projects should be determined in consultation with relevant Council service areas, and the Project Working Group as not all requirements may be suitable for each project.

The ESD Checklist is broken up into the following worksheets:

1. Project Details - use this page to capture basic project information and to determine the ESD requirements for the project. Fill in the details for the Project Title, Project Type, Project size of budget and ESD budget allocation. The remaining fields will be auto-populated.
2. Project Management - to be used for all project types, this section details the project management consideration at the various project phases. Tick off each requirement as it has been addressed.
3. Scoping & Planning - requirements for the scoping and planning phases of building projects. For each item identify if it has been applied using the dropdown box and add relevant notes.
4. Design - requirements for the design phase of building projects. For each item identify if it has been applied using the dropdown box and add relevant notes.
5. Demolition & Construction - requirements for the demolition and construction phases. For each item identify if it has been applied using the dropdown box and add relevant notes.
6. Documentation - requirements specified in this section should be supplemented with documentation required for relevant sustainability assessment tools, disclosures, or certificates as appropriate to the ESD requirements for that project.

An Infrastructure specific ESD Checklist can be found in [e-clip 20/238303](#).

5. Measuring our Progress

The effectiveness of the ESD Policy and Guidelines in influencing the sustainability outcomes of building projects will be monitored and reviewed to assist with continual improvement.

The indicators to measure our progress are:

1. Increase in the proportion of building projects that achieve the Policy Position standard or better
2. Number of Green Star certified projects achieved
3. As built ESD policy objectives achieved compared to ESD requirements in project brief
4. Reduction in greenhouse gas emissions, potable water use, improved stormwater quality and landscape outcomes compared to a standard building
5. Proportion of projects where process (including decision making process) has been evaluated for effectiveness and improvement
6. Number of projects that include elements of community and staff engagement
7. Increased usage of building vulnerability assessment methodology measured by identification of climate adaptation actions
8. Proportion of total budget spent on ESD elements

Monitoring and evaluation will be undertaken by Integrated Planning, with assistance from Assets and the Project Manager. ESD outcomes will be reported annually to stakeholders including the

Corporate Management Team (CMT), Management Group, the Strategic Asset Management Working Group (SAMWG) and the Maroondah Environment Advisory Committee (MEAC).

5.1 Optional monitoring tools

Apart from the certification tools required in the ESD Policy, there are a number of alternative tools that are available that could be used to measure the achievement of the policy objectives. These are discussed below. If any of these tools are to be integrated in to a project, they should be firstly considered by the Project Working Group for relevance and ease of implementation.

City of Melbourne's Green Factor Tool

The Green Factor Tool was developed by the City of Melbourne and is designed for landscape architects, architects, ESD consultants, and other built environment professionals who want to assess the credentials of their project's green infrastructure. The tool provides users with a Green Factor Score that takes into account the relative volume and efficacy of green elements, in comparison to the overall area of the site. It requires details about a site's location and quantities, volumes and basic specifications of green infrastructure elements. It is recommended that this information is on hand when completing the tool, however you can also save progress at anytime. (<https://www.greenfactor.com.au/>). The tool can be used for optimising the incorporation of green infrastructure into a project design, as well as monitoring the green infrastructure credentials of a final design.

Natural England's Biodiversity Metric 2.0

The Biodiversity Metric 2.0 provides a way of measuring and accounting for biodiversity losses and gains resulting from development or land management change. The metric comes with a free calculation tool designed to simplify and speed-up the whole calculation process. It can encompass both area (e.g. grasslands) and linear (such as rivers and streams) habitats and also includes common green infrastructure features.

Living Building Challenge

Currently considered the world's most rigorous proven performance standard for buildings. Buildings must address and strive to meet criteria in seven distinct petals; place, water, energy, health & happiness, materials, equity and beauty. Buildings may aim for certification through different paths such as zero net energy, zero carbon and healthy materials. Certification is not granted until build performance has been proven at least 12 months post occupancy

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Glossary

Asset: Within Maroondah City Council assets are managed by Council on behalf of the Community to provide a broad range of services. Assets are a physical component of a facility, which has value, enables services to be provided, and has an economic life of greater than 12 months. Some of these asset types are buildings, carparks, parks and reserves, stormwater drainage pipes and structures and furniture and equipment.

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.

Council buildings and surrounding assets: Council buildings and surrounding assets are assets managed by Council on behalf of the community to provide a broad range of services including leisure services, community services, arts and cultural services, aged services, children's services. The surrounding assets are the carparks, paths and open space that can be impacted by and/or contribute to the building project.

Environmentally Sustainable Design (ESD): Building design that seeks to improve building performance, reduce environmental impacts, resource use and waste and create healthy environments for occupants.

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

Gross floor area: A building's total floor area including all roofed areas, measured from the outside of external walls or the centre of party walls.

Independent Commissioning Agent: A role that can be filled by one or more people who advocate for, and report directly to, the project owner. 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 nominated systems commissioning.

Infrastructure Sustainability tool (IS): IS Rating Scheme is a comprehensive rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, networks, and assets. IS evaluates the sustainability performance of the quadruple bottom line (governance, economic, environmental, 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.

Open space: Any parcels of land within Maroondah that is managed by Council or other public authorities and is accessible to the public for the purpose of community outdoor use or environmental protection.

Project manager: The individual responsible for managing a project.

Project sponsor: Main driving force of a project to whom the project manager reports – such as Executive Management Team.

Project Steering Group: The group that monitors the project and provides guidance to the project sponsor or manager.

Project Working Group: The group that comes together to contribute their expertise to achieve stated objectives.

Relevant service areas: Council service areas who can provide input and advice on ESD relevant to their area of expertise (e.g. Operations for urban ecology; Engineering & Building Services for stormwater)

Renewal: Includes any work that is focused on refurbishing, rehabilitating, renovating, or restoring an existing asset to its required functional condition, and providing enhanced longevity for the existing asset through an extension to its useful life. Renewal also includes the replacement of an existing asset with a new asset of equivalent capacity or performance capability.

Sustainable Design Assessment (SDA): A simple sustainability assessment that indicates how a project will address sustainability objectives, targets and standards – in this case of the *ESD Policy for Council Buildings* and the *ESD Policy Guidelines for Council Buildings* requirements.

Sustainable Management Plan (SMP): A detailed sustainability assessment that indicates how a project will address sustainability objectives, targets and standards and how the performance outcomes will be achieved – in this case of the *ESD Policy for Council Buildings* and the *ESD Policy Guidelines for Council Buildings* requirements. 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.

User Groups: Existing and future users of Council facilities.

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, for example, the design of buildings to minimise stormwater runoff and its re-use on-site, or the integration of raingardens and wetlands in an urban area to manage stormwater.