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Department of Environment and Climate Change NSW

4

Sustainability and Project Delivery

Colonial First State

Global Asset Management

Department of **Environment & Climate Change** NSW

www.environment.nsw.gov.au

4.0

Section 4 overview

This section provides ideas and tools to help integrate environmental and social sustainability into your project delivery for refurbishments or fitouts.

Spending capital funds to refurbish existing offices or new fitouts provides an opportunity to effectively integrate sustainability into your procurement process, and to strengthen the business case for sustainability. The benefits can be both direct and indirect (e.g. improved reputation or marketability resulting from good environmental performance) and become part of the value matrix.

Early decisions on identifying and integrating sustainability standards into the property cycle are more likely to result in the creation of long-term value. However, throughout the whole project delivery continuum there are key windows of opportunity for setting and achieving higher levels of performance based on sustainability standards.

Capital or recurrent funded development projects can provide the scale and momentum to support improved environmental and social standards. Whether a refurbishment, an upgrade or new fitout, sustainable development projects allow your organisation to demonstrate its commitment, comply with policy goals, engage with your stakeholders and achieve better standards.

This section does not set out to provide design solutions for environmental sustainability. Design solutions, standards and technical information for designers and managers working in the property industry are readily available elsewhere. Green building standards are increasingly demonstrating what can be achieved. Competencies in the use of these standards and their integration into project management is also increasing.

4.1 Sustainable building through design management

Explains how design management tools can help your design team and project managers set and achieve desired sustainability outcomes.

Worksheet 4.1A Sustainable Design Plan (SDP) template

Worksheet 4.1B Choosing the appropriate environmental rating tool

4.2 Sustainable building projects through tendering

Outlines the role of the tendering and contract documentation process in supporting your project's sustainable design intent.

Worksheet 4.2A Environmental specifications – building refurbishment and fitout projects

Worksheet 4.2B Environmental evaluation of project tenders

4.3 Sustainable fitouts

Suggests how you can use commercial fitouts as an opportunity to engage with your tenants and help them integrate sustainability into their fitout design and construction.

Worksheet 4.3A Checklist for sustainable fitouts

4.4 Sustainable base building refurbishment (retrofitting)

Provides guidance on assessing the current performance of the base building, scoping refurbishment (retrofitting) in accordance with good property fundamentals, changing tenant demand for green performance and the established environmental rating tools.

4.5 Reporting sustainability outcomes

Provides a template for listing the benefits of completed projects to help you promote these outcomes to key stakeholders.

Worksheet 4.5A Project completion sustainability report

Project delivery process

The project delivery process for building projects and upgrades provides many opportunities for adding or better defining sustainability practices:

1 Planning
- Establish sustainability vision and goals
- Build sustainability cost allowance into project budget

2 Concept design
- Identify key responsibilities
- Develop initial sustainable design plan

3 Commissioning
- To ensure the targets are achieved include commissioning expertise from project inception and scoping through to ongoing management of the completed and rated project

4 Detailed design
- Explore design options and undertake cost benefit analysis
- Update sustainable design plan

5 Tender documentation
- Determine tender environmental specifications
- Determine environmental management provisions to be included in the contract

6 Tender evaluation
- Include sustainability in tender evaluation criteria
- Review tenderer's outline Environmental Management Plan

7 Contract administration
- Ensure contractor's detailed Environmental Management Plan is satisfactory (and Waste Management Plan if applicable)

8 Occupation
- Prepare project completion sustainability report
- Negotiate green leasing arrangements
- Conduct post-occupancy environmental evaluations

Sustainable building through design management

4.1

Context

The design process – and good design – is critical to sustainability. This section contains advice about how to manage the design process for building refurbishment or fitout projects to support your organisation's sustainability goals. This applies to any form of commercial construction, whether:

- starting a new development on a greenfield or brownfield (previously developed) site
- refurbishing an existing base building (also called retrofit), or
- constructing a new tenancy fitout or deconstructing and rebuilding a fitout for an existing tenancy.

A project's design phase is the primary context for selecting the options and initiating the actions that will determine whether your refurbishment or fitout will result in a property that is sustainable in the short and long term. Your sustainability initiatives must be included from the outset because they cannot easily be added later. Optimum environmental and social outcomes are more likely if your design process is guided by a structured and accountable approach, rather than relying on a designer's inherent capabilities or including general statements about aspirations in a project design brief.

Sustainable Design Plan (SDP)

One approach to help integrate sustainability criteria into your design process is to use a project management tool such as a Sustainable Design Plan (SDP). Elements from an SDP can also be incorporated into other project management tools as your project team's experience in incorporating sustainability issues develops.

An SDP applies to your design and contract documentation phases. Its purpose is to set, track and record progress against your project's sustainability objectives. An SDP can also provide a vehicle for:

- transferring design intentions through to a project's construction and operational phases
- increasing end users' awareness of sustainability features and helping to transfer to them the responsibility for effectively managing those features.

What's in this section

An SDP does not replace the use of environmental rating tools for buildings, such as NABERS or Green Star. Rather, it presents your desired building performance attributes in a format that allows your project manager, or other design team members, to:

- assign accountabilities
- track progress
- record decisions made and the rationale behind them.

Worksheet 4.1A contains a template you could use as the starting point for project managing the sustainability aspects of your building design process. This template could be applied to any commercial or retail property base building refurbishment (retrofit) or tenancy fitout.

Steps: Integrating sustainability into the design process

The following steps can be integrated into existing planning and evaluation processes.

1 Establish the sustainability vision and goals

Achieving recognised ratings such as NABERS and Green Star is generally seen as being critical to the owner's ability to lease or sell the buildings. The market recognises the star ratings, even if they do not understand the detail of how ratings are calculated.

Defining the goals

Goals and other desired outcomes – such as specific performance targets (e.g. energy efficiency improvements of 20% above portfolio average NABERS and Green Star rating) – could be defined in a workshop situation. The participants could include:

- a recognised sustainability facilitator or environmental practitioner who is able to set the context for sustainability in the relevant marketplace
- your project team, e.g. architects, services consultants, structural engineers, quantity surveyors, commissioning agent
- the client or owner of the project
- if an external service provider is to be appointed to manage the property, a representative of the proposed property management organisation
- if the project is to be leased or sold, a representative of the organisation that will be selling or leasing the property.

Using sustainable design plans

'The Colonial First State Global Asset Management Sustainability Manual provides instructions for fund, portfolio and development managers about how to use sustainable design plans (SDPs) in the design and delivery of new buildings and major refurbishments.

The purpose of SDPs is to:

- facilitate a process for identifying project sustainability objectives and integrating them into the design process
- track and monitor design team progress, including the rationale behind decisions that influence the project's ability to achieve its sustainability objectives
- record the outcomes of design or product investigations (for knowledge-transfer purposes) and
- increase awareness of Colonial First State Global Asset Management's commitment to property sustainability in the design and contracting market.

SDPs are mandatory requirements on all capital projects in excess of $2.5 million, and projects over $150 million in total have SDPs as part of their delivery process. Examples include 259 George Street, Sydney; 1 York Street, Sydney and 367 Collins Street, Melbourne.

Project outcomes include:

- increasing diversion of demolition waste from landfill
- using materials with a high percentage of recycled content
- specifying waterless urinals
- increasing use of energy efficient lighting
- avoiding toxic materials
- increasing the potential NABERS ratings (Energy, Water and Waste)
- achieving Green Star credit points.'

Colonial First State Global Asset Management, www.cfsgam.com.au

Even if leasing or selling agencies have not been appointed at this stage their objectives can be set now – to be worked into a contract later on. It's important to involve the full project team in this workshop session because the decisions may involve all the various disciplines.

When defining sustainability goals, your analysis should include the whole-of-life operational savings that will result from achieving a green building standard, as well as the costs and benefits of each initiative. The goals could be set out as aspirations with an agreement to strive for the best possible result within the resources available.

Evaluating the business case

When deciding which sustainability goals to pursue, evaluate the business case as described in Section 3.1: 'Incorporating sustainability into decision making'. This will help to establish a logical and reviewable framework for making decisions.

Remember to test the outcomes so that your goals and the resulting scope of works:

- are coordinated to perform to grades or ratings
- meet your strategy for the building or tenancy
- meet market demand.

Provide a broad timeframe and plan for each goal, including a priority list.

2 Incorporate goals into the building project briefs

The project brief, project manager's brief and design consultant's brief all need to set out:

- the agreed sustainability goals and targets, including NABERS and Green Star ratings
- the key performance indicators that will be used to measure achievements in relation to these goals and targets
- the roles and responsibilities of the project manager, design team and sustainability facilitator or environmental practitioner.

The SDP could be the formal link between design work and your sustainability goals. (The alternative is to incorporate the sustainability goals into other existing project management tools.) Where an SDP will be used as a project management tool make sure your design team understands this from the outset.

Check against industry tools from the start

If you intend to have the project Green Star or NABERS rated, or graded against the Property Council of Australia's *A Guide to Office Building Quality*, then use their tools and guides from the outset and refer to them regularly to make sure the project complies with them where possible. It's difficult to reverse or correct early decisions at a later stage.

For example, under Green Star, the early engagement of a commissioning agent is important. If this is missed, you may lose the opportunity to achieve some of the commissioning points.

If you are entering into a Commitment Agreement for a NABERS Energy rating, this should be done in the earliest stages of a project, while it is still possible to make adjustments to the design.

Use the tools as checklists

Use the NABERS and Green Star categories and tools as checklists. The Green Star Credit Summary Tables provide an excellent document that can be used as a checklist to ensure that most aspects of sustainability have been considered.

For NABERS see www.nabers.com.au

For Green Star see www.gbca.org.au

For the PCA's *A Guide to Office Building Quality* see www.propertyoz.com.au

3 Develop a Sustainable Design Plan

Before any design work begins, your project manager (or design manager) needs to adapt the generic SDP template (Worksheet 4.1A) to suit the project scope and the agreed sustainability goals. Any aspects of performance and desired environmental outcomes ('design intent') agreed to previously should be included in the SDP, with a clear instruction that your design team needs to collaborate as necessary to achieve these goals.

To support this process, get your project manager and design team together to review the environmental or other risks associated with non-delivery or under-achievement in relation to the sustainability goals and targets.

If you have the support of all parties, this does not need to be quantified, but qualified. The environmental goals and aspirations can be broad – put your time and energy into moving forward with the appropriate, environmentally sensitive design plan and selecting the appropriate ratings tool. Before the first design team meeting:

- ask your design team to review the SDP template and add any 'actions to be taken' (See Worksheet 4.1A), and then
- ask your project manager to review the actions, compile the project's draft SDP, and comment on the plan's comprehensiveness and practicality.

Review and refine the SDP to make sure it covers all relevant areas and is appropriate for the scope of the project and your sustainability goals. A sustainability facilitator could help with this task.

At the design team's first meeting, ideally before the project brief has final approval, discuss the SDP to refine the actions and confirm the responsibilities. Once all the applicable sections of the SDP have been compiled, seek final approval.

Once formally accepted, the SDP becomes the agreed Project Management Tool for facilitating sustainable design during the design and documentation phase of your project. As such, make sure it is included in the normal project management process undertaken by your project manager and used as a reference tool during design meetings.

4 Implement the SDP

Use the SDP to monitor the project's design development and check whether the project is on track to achieve the required sustainability goals. Comprehensively record all actions, outcomes and decisions relating to sustainability during the design phase. In particular, the capacity to achieve the sustainability goals and targets should be assessed and

Fostering innovation

Encourage a culture of innovation within your design team, so that all possible options for achieving the sustainability goals can be explored. Options that might require senior management comment or agreement should be presented as part of usual project management procedures, supported by information about capital costs, whole-of-life costs and whole-of-life benefits. In some cases it will be appropriate to use life cycle assessment techniques to present the environmental costs and benefits.

reported on. Other documentation, e.g. supplier's product statements or outcomes of building investigations, may also be appended to the SDP. (See Section 5: 'Sustainability and the Supply Chain'.)

Reviews and updates

Review and report on the SDP progressively during the design and contract documentation phases and update it as required. Assess which sustainability benchmarks (e.g. energy efficiency performance or material selection) are on track and which goals can be achieved within the project budget. This may involve changes to the design. It's also important to feed this information back through your project team.

If your design team's brief is to achieve a desired environmental rating then it's crucial that progress towards this goal is reviewed. The team should periodically carry out a test rating of the project to track progress by using a comprehensive checklist, e.g. the Green Building Council of Australia have one in their design tool, titled 'Credit Criteria' (see gbca.org.au). Note that while a NABERS Energy rating cannot be obtained until you have at least 12 months' energy data after the building has been substantially occupied, it is possible to sign a Commitment Agreement to achieve a future rating. This allows you to promote the future rating from the outset of a project. See www.nabers com.au for more information.

Encourage design team members to regularly review their actions and update the SDP as necessary so that it accurately reflects progress and outcomes. As a minimum, review and update the project's progress against the SDP at the following stages:

- confirmation of the design brief
- 50% design stage
- 95% design stage
- 50% contract documentation stage
- tender stage.

Add an updated copy of the SDP to the project file at each of these stages so it's available when required.

Before going to tender, the relevant design team members should sign off the final SDP as confirmation that all tasks have been completed as described in the plan. Make sure the completed SDP is accompanied with sufficient documentation to support an application for a formal environmental rating such as Green Star or NABERS.

Managing knowledge

It's important the SDP also records outcomes or decisions about why a particular goal or target could not be achieved. This will help to support the knowledge management process between all the team members.

Capacity building

When used effectively, the SDP can facilitate transfer of knowledge right through to documentation for handover to occupants and other end users. This could be prepared as a Building Users' Guide or information for tenants. It can also support transfer of knowledge within a property or design organisation and between various property projects.

Benefits of experience

Using a contractor with sustainability experience can be of benefit to the project. As an example, using contractors with ISO 14001 certification may enable you to gain additional points under Green Star.

Involving the contractor

Include a completed, final SDP in the tender and contract documentation to be provided to the successful building contractor. This will help to facilitate your contractor's awareness and compliance during the construction phase.

Many building projects use a design and construct contract or guaranteed maximum price contract where the project is not fully documented prior to tender. Care must be taken where there are strict sustainability requirements. There may be benefit in involving your contractor before the construction documentation is finalised to contribute construction expertise to your project team and deal with issues such as buildability, choice and availability of materials and constraints from existing structures and services.

Encourage your contractor to incorporate key aspects of the SDP into their project management system and to progressively report on performance against the intent of the SDP, as well as on any specific contract requirements related to the project's sustainability goals.

5 Monitor the SDP during the construction phase

Monitor the project performance during the construction phase to ensure everything is on track to achieve the required sustainability goals. This is particularly important where non-delivery of sustainability initiatives could significantly impact on the project's creditability or achievement of the chosen rating. Include review of environmental performance as a subject in project site meetings.

6 Report sustainability achievements

At the end of the project report and evaluate the sustainability outcomes. This will enable you to compare achievements against the goals and make sure that lessons learned are available for future projects. See Section 4.4 on reporting sustainability outcomes.

Further issues to consider

A tool, not a statement of objectives

An SDP is not a substitute for sustainability standards in your project design brief. Your approved project brief should describe or quantify the desired sustainability objectives for the project e.g. to achieve a 5 star NABERS Energy rating or to set a new benchmark in green building performance. The SDP is a tool to help achieve these objectives.

Record the rationale

Your SDP should record decision-making processes and why certain actions or design elements (whether included in the budget or not) were or were not integrated into the tendered design. This is especially desirable where further investigation is required, e.g. finding more information about the energy performance of various chiller options or the air emissions of a particular flooring product. The SDP records the outcomes of such investigations and your rationale behind decisions made.

When is it mandatory?

You can set thresholds above which an SDP should become a mandatory component of your design process. There is no prescriptive benchmark to follow, other than to acknowledge that improved project design can lead to improved outcomes no matter what your project's capital cost. Whether an SDP is applicable depends on how you perceive the risk of NOT achieving sustainability performance. Your achievements can be quantified using the NABERS or Green Star rating tools. However, sustainability measures must be maintained because the smallest job not carried out to your sustainability standards can damage the environmental performance of your property.

Worksheets

Review and use these Word documents:

4.1A Sustainable Design Plan (SDP) template

4.1B Choosing the appropriate environmental rating tool

Worksheet 4.1A

[Project name]

Sustainable Design Plan

This is an example only – adapt this worksheet to suit your organisation's requirements.

Working document—initial schematic design stage

Compiled for [name of Design team leader] by [name of Sustainability Facilitator]

Date of issue to Project Manager:	Last review date:	Design Manager approval: date	Project Manager approval: (completion of all actions) date

Using this template

Guidelines for using this template are included here and in Section 4.1 of the DECC NSW Sustainable Property Guide.

This Sustainable Design Plan (SDP) template could be applied to any commercial or retail property base-building refurbishment (retrofit) or tenancy fitout.

Adapt this generic SDP template to suit your project. Adaptations might include adding references to Green Star, NABERS, the Property Council of Australia's (PCA) *A Guide to Office Building Quality* or other performance categories which will help achieve the project's sustainability vision.

This SDP will be retained as a project management record of commitments at schematic design stage and will be progressively updated as investigations proceed, decisions are made and outcomes are progressed during the design and contract documentation phases.

Importantly, information should be provided in sufficient detail to explain why initiatives have been incorporated and why others have been considered, investigated and discounted. Wherever possible, likely outcomes or benefits (e.g. energy/CO_2 savings, potable water savings) should be quantified, based on a traditional design approach.

Aim: To stimulate, track and record the sustainable design process and to ensure every reasonable effort is made to support the project's environmental and social sustainability goals.

Model: The content of the SDP may be guided by a building environmental rating tools e.g. the Green Star or NABERS rating system.

Sustainability intent: The 'design intent' listings in the SDP are a result of a sustainability workshop. They represent the desired sustainability goals for this project.

Design team responsibility: Review relevant sections and add information to Column B 'Design team actions' to record actions that will be taken during the design, design development and contract documentation phases to achieve the design intent. Actions will be discussed and confirmed at the first team meeting.

Sustainability Facilitator responsibility: Progressively record status of actions, investigations and decisions made against each action item. Include options presented for approval and resulting decisions. Quantify expected environmental or social benefits wherever feasible.

[Company name] is responsible for maintaining this SDP, seeking updated information from the design team and providing advice to the Design Manager as necessary to ensure an appropriate record of the sustainable design decisions on this project are maintained for project and client purposes.

[name of Sustainability Facilitator/Environmental Practitioner]

[Contact details]

Appropriate benchmarks (examples)

Identify a set of appropriate design benchmarks against which this project can be compared. Design objectives may exceed these benchmarks. Individual criteria from tools may be used.

Benchmark examples	Source
2 star NABERS Energy	Current accommodation
2.5 star NABERS Energy and 4 star Green Star	Current portfolio average
3.5 star NABERS Energy	Competitors recent achievement in this market
1 star NABERS Water	Current accommodation
1.45 kL/m^2 NLA pa potable water	Current accommodation
No refrigerant containment	Current accommodation
22% tenant waste recycling	Current accommodation
67% construction waste diversion from landfill	Last development
tenant complaints regarding comfort and air quality reduced to 57% of all complaints	Last development
313 mJ/m^2/pa base building energy consumption – Sydney best practice	Property Council of Australia
Other: NABERS Waste NABERS Indoor Environment PCA *Guide to Office Building Quality*	

List key agreements and actions arising from the sustainability workshop (if undertaken)

Project context

Identify information that sets the context for sustainable design objectives and design team actions. Examples may include:	
Have outcomes of the feasibility study been provided to design team?	yes/no
Have key findings of the contaminated site investigation been provided to design team?	
Have sustainability objectives been stated in the project brief?	
Has a tenant agreement been entered into to provide a specific level of environmental quality?	

Key people involved	
Client Representative	[name]
Project Director	[name]
Project Manager	[name]
Design Manager	[name]
Sustainability Facilitator/ Environmental Practitioner	[name]

Sample only: how the tables work

A Design intent	**B Design team actions**	**C Resp.**	**D Status and outcomes**	**E Indicators**	**Complete**
Briefly describe the design intent in regard to sustainability, item by item.	For each design intent, list actions proposed or agreements made by the design team at the initial concept design workshop.	Identify who is primarily responsible for carrying out the agreed actions. List key supporters if necessary.	Update this section as design and documentation work progresses.	Identify performance indicators for areas of responsibility. May relate to agreed 'green building' indicators. These indicators will provide information for promoting the outcomes to key stakeholders.	Sign off when complete.

Integrated design

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Examples: Achieve an effective and collaborative design process by engaging the multiple design disciplines, as well as owners, users, contractors, facility managers and operations personnel.					
Establish project environmental and social performance goals and use these as the basis for selecting and implementing related building design, construction and operational strategies.					

Sustainable site

Describe the environmental features of the site, including proximity to public transport, Green Star credits and any limiting factors or likely DA conditions.

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Examples: Reduce the environmental impact of the location of the development on adjacent residential or business communities.	List actions that will optimise environmental and social outcomes of site development. Refer to any environmental studies (or site contamination studies) and resulting required mitigating actions relating to design work.				

Sustainable site

Describe the environmental features of the site, including proximity to public transport, Green Star credits and any limiting factors or likely DA conditions.

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
No adverse visual impact when viewed from neighbouring areas.					
Undertake site remediation and rehabilitation as required to optimise site use and eliminate health hazards.					
Conserve, protect and enhance existing natural areas and restore damaged areas providing environmental habitat.					

Water efficiency

Describe the appropriate performance benchmark to measure outcomes against e.g. local water authority best practice, Green Star credits or NABERS Water rating, or current accommodation water efficiency.

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Examples: Eliminate use of potable water for HVAC equipment cooling.			As above	As above	As above
Limit or eliminate the use of potable water for landscape irrigation.					
Reduce generation of wastewater and potable water demand through innovative water demand technologies.					

Water efficiency

Describe the appropriate performance benchmark to measure outcomes against e.g. local water authority best practice, Green Star credits or NABERS Water rating, or current accommodation water efficiency.

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Maximise potable water usage efficiency to reduce burden on municipal water supply and wastewater systems.					
Achieve a NABERS Water 4 star rating.					
Through sub-metering, provide for ongoing accountability and optimisation of building water use efficiency over time.					
Reduce use of process water—use building system equipment with low-flow or no-flow water use. Reduce or eliminate use of potable water for non-potable processes.					
Use 5-star WELS rated water efficient appliances throughout.					
Use waterless urinals throughout.					

Energy and atmosphere

Describe the appropriate performance benchmarks to measure outcomes against e.g. Green Star credits; NABERS Energy rating, PCA Quality or current accommodation energy efficiency.

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Examples: Establish the minimum level of energy efficiency for the building and systems.	List specific actions by specific members of the design team to achieve design intent				
Reduce use of non-renewable energy sources through increased energy efficiency of building services and lighting.					
Achieve a performance comparable to 5 star NABERS Energy (base building).					
Investigate use of renewable energy technologies to reduce fossil fuel use by 10%.					
Ensure that fundamental building elements and systems are designed, installed and calibrated as intended.					
Reduce ozone depletion potential and global warming potential through careful selection of chillers and their refrigerants.					

Energy and atmosphere

Describe the appropriate performance benchmarks to measure outcomes against e.g. Green Star credits; NABERS Energy rating, PCA Quality or current accommodation energy efficiency.

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Provide for the ongoing accountability and optimisation of building energy consumption performance over time.					

Materials and resources

Describe the appropriate performance benchmarks to measure outcomes against e.g. Green Star credits, emerging good practice or best practice trends or client's current accommodation recycling performance.

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Examples: Conserve material resources by minimising initial resource use and designing for flexibility and ease of adaptation for future uses.	List specific actions by specific members of the design team to achieve design intent				
Divert at least 90% of construction and demolition waste materials from landfill through recycling and reuse.					
Reduce operational phase solid waste to landfill by designing effective recycling facilities for tenants.					

Materials and resources

Describe the appropriate performance benchmarks to measure outcomes against e.g. Green Star credits, emerging good practice or best practice trends or client's current accommodation recycling performance.

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Reduce ozone depletion potential and global warming potential by preventing refrigerants leaks and through careful selection of materials.					
Use materials with a recycled content.					
Encourage environmentally responsible forest management through use of certified timbers.					
Ensure life-cycle impacts are identified in material selection.					

Indoor environmental quality

Describe the appropriate performance benchmarks to measure outcomes against e.g. Green Star credits, NABERS Indoor Environment, NHMRC thresholds, or current accommodation

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Examples: Provide a high level of control over temperature and ventilation or lighting systems for occupants to promote their productivity, comfort and wellbeing.	List specific actions by specific members of the design team to achieve design intent				

Indoor environmental quality

Describe the appropriate performance benchmarks to measure outcomes against e.g. Green Star credits, NABERS Indoor Environment, NHMRC thresholds, or current accommodation

A Design intent	B Design team actions	C Resp.	D Status and outcomes	E Indicators	Complete
Establish minimum indoor air quality (IAQ) performance requirements to prevent the development of IAQ problems.					
Provide capacity for IAQ monitoring during occupation to sustain long-term safety and comfort.					
Provide for the effective delivery and mixing of fresh air to support occupants' safety, comfort and wellbeing.					
Reduce emissions of indoor air contaminants from materials that are odorous, potentially irritating or harmful to the comfort and wellbeing of installers and occupants.					
Avoid materials or products with urea-formaldehyde resins.					
Avoid all fitout or building materials which off-gas VOCs.					
Use very low-VOC finishes throughout.					
Avoid using furnishings that may foster allergens or dust mites.					

Worksheet 4.1B

Choosing the appropriate environmental rating tool

Environmental rating tools fall into two categories:

1 Those used to validate the environmental initiatives of the design phase of a:

- new building
- base building refurbishment / retrofit, or
- fitout / interiors.

These validate that the environmental initiatives proposed in the design phase have been implemented.

2 Those used to assess a building's environmental impact when in use.

Tools for the design phase

Green Star

Green Star ratings, managed by the Green Building Council of Australia, are used to assess the design of a building against various environmental criteria. The following rating tools are available for new buildings and those undergoing substantial refurbishment:

- Green Star Office Design and As-Built
- Green Star Interiors (internal fitout)
- Green Star Retail (shopping centres)
- Green Star Education

Other rating tools are being developed.

NABERS

NABERS ratings, managed by the Department of Environment and Climate Change NSW (DECC), measure the actual impact of an existing building in operation. However, it is possible to use the NABERS Energy tool to predict the future performance of a building. Developers and builders can promote the energy efficiency of their proposed buildings by entering into a Commitment Agreement with NABERS.

The NABERS Energy Commitment Agreement allows developers and building owners to promote and market excellent greenhouse performance of new and refurbished office buildings from the outset. The Commitment Agreement will state a commitment to design, build and commission the premises to 4, 4.5 or 5 star performance. The project undergoes a careful review process to ensure that it is able to meet the agreed performance level.

Tool for buildings in use

NABERS

DECC has established the NABERS ratings for assessing the performance of existing buildings based on their historical measured operational impacts on the environment. Ratings are available for office and hotel buildings, and ratings for other building types are under development.

NABERS can be used to rate offices and hotels in the following categories:

NABERS can be used to rate offices in the following categories:

NABERS Ratings	Offices	Hotels
Energy	Yes	Yes
Water	Yes	Yes
Waste	Yes	No
Indoor Environment	Yes	No

Further information

For more information visit:

www.gbca.org.au

www.nabers.com.au

Sustainable building projects through tendering

4.2

Context

This section contains advice about how to use the tendering process for building refurbishment or fitout projects to support your organisation's sustainability goals.

Project tendering, tender evaluation and contract administration are critical processes for delivering the sustainable or 'green building' outcomes established as design goals during the building or fitout design phase (See Section 4.1: 'Sustainable building through design management'). By detailing your expectations in regard to performance standards and sustainability, and by vetting prospective contractors, the tendering process has a crucial role in maintaining desired environmental and social outcomes in the long term. As well as detailing your requirements, the tendering process needs to help contractors, managers and suppliers understand the role they will be expected to play in supporting the required environmental and social outcomes.

For day-to-day purchasing of goods and services, sustainability goals can be supported by developing and implementing a purchasing policy that includes sustainability provisions. (See Section 5: 'Sustainability and the Supply Chain'.)

What's in this section

Steps: Integrating sustainability into the tendering process

The following steps can be integrated into your organisation's standard project procurement processes.

1 Determine thresholds

Determine the threshold at which sustainability criteria and performance standards will be included in tender and contract specifications.

The following thresholds are examples only:

Project scope	Threshold for sustainability provisions
New developments	All 'main contractor' construction tenders
Building fitouts or refurbishments	All tenders over $200,000 value
Building services equipment upgrades	All tenders over $200,000 value

To determine this threshold consider:

- potential environmental risk from demolition and construction activities
- risk to the project's sustainability goals
- the impact on your organisation's sustainability objectives and commitments.

2 Adapt tender documents to include sustainability provisions

Instruct the documentation team to include sustainability provisions in the tender documents. To follow an example, the team could refer to the environmental specifications set out in Worksheet 4.2A and adapt them to suit the contract style and the scope of work being tendered. Social aspects such as OH&S, employment conditions and community initiatives can also be included.

Worksheet 4.2A is adaptable for use in all construction tenders – tenancy fitouts or base building refurbishments (retrofits) of existing commercial or retail buildings. These requirements are not intended to replace or override any other environmental or contractual requirements of the tender or contract. (Clause numbering should be amended to suit the tender structure.)

Schedule of Environmental Management

The specifications include a Schedule of Environmental Management. This requires the tendering company to provide information about its experience, capability and approach to environmental management on the project. The tenderer's response to this Schedule provides the information required for the tender environmental evaluation.

Environmental Management Plan (EMP) or Waste and Recycling Management Plan (WMP), or both

The model specification calls for the tenderer to define the need for either an Environmental Management Plan (EMP) or Waste and Recycling Management Plan (WMP), or both. In general, an EMP can include a WMP. However, the option exists for the tenderer to be required to provide a separate WMP in situations where waste management is a key environmental risk e.g. demolition contracts or upgrades of base building services.

Outline only

The model specification calls for the tenderer to include an **outline** EMP or WMP (or both). This outline should include an overview only of the structure and scope of issues to be addressed and the general approach to be taken to integrate the EMP or WMP into the tenderer's project management procedures. It is not expected to include significant project-specific detail on methodology, actions, work instructions or progress reporting. After the tender has been awarded, the selected contractor will be required to complete the EMP or WMP in sufficient detail to enable it to be approved for use.

Responding to enquiries

Make sure there is a process in place to respond to and record queries or concerns expressed by prospective tenderers.

3 Include sustainability in the evaluation process

Set up a consistent process for evaluating tenders. This includes establishing weightings for the various environmental sustainability criteria which reflect their relative importance and level of risk. To follow an example use an evaluation form such as Worksheet 4.2B. Worksheet 4.2B is based on the provisions set out in the Worksheet 4.2A: 'Environmental specifications – projects' and is designed to be used to record and assess the tenderers' responses to key sustainable contracting and project delivery requirements. The evaluation can be applied to a pre-qualification process or to a tender response. In both cases, the form needs to clearly list the requirements to be responded to.

Importantly, this evaluation is intended to support the selection of the most appropriate contractor and identify commitments made during the tendering stage which should be included in the contract agreement. This evaluation should supplement any other evaluation undertaken to enable a procurement decision to be made.

Although the evaluation form is designed for any construction contractor, allowance should be made for the assessment of small companies or companies providing a very limited scope of services.

The evaluation form is intended to be selective and easy to use. However, where environmental or social risks are significant, or key areas of performance are required, the checklist should be expanded to deal with some areas in more detail. For example, standard OH&S components could be expanded to include other social issues such as labour practices, and additional detail about project experience or waste management capabilities could be requested, etc.

If necessary, ask a tenderer to provide further information to clarify or support their tender response. Make sure the tenderer understands that, if insufficient information is provided to enable an adequate assessment, the tender may be rejected. Keep all documents associated with the selected tenderer for future reference.

Worksheets

Review and use these Word documents:

4.2A Environmental specifications – building refurbishment and fitout projects

4.2B Environmental evaluation of project tenders.

Worksheet 4.2A

Environmental specifications – building refurbishment and fitout projects

This is an example only – adapt this Worksheet to suit your organisation's requirements.

This worksheet contains inserts which can be adapted and used in the tender and contract specifications for building refurbishment and fitout projects.

The desired outcome is to ensure both the tender selection process and the execution of the works appropriately address the environmental and social risks attributable to the project. See Worksheet 4.2B for environmental evaluation criteria for project tenders. This has been adapted from the original text by Colonial First State Global Asset Management.

Part A: Inclusions for conditions of tendering and preliminaries

Environmental management

Background

The [*project owner or principal under the contract*] is committed to maximising environmental and social sustainability outcomes within the properties it owns and manages.

The construction or refurbishment of commercial [and retail] properties entails environmental and social impacts related to:

- energy and water consumption
- pollution
- waste discharges, and
- the manufacture and installation of building materials.

The [*project owner or principal under the contract*] is therefore obligated to take all reasonable measures, through the execution of this contract, to mitigate these impacts.

The [*project owner or principal under the contract*] therefore requires tenderers to be aware of its environmental management requirements and to take active measures as described in this tender to adequately address these impacts in response to this tender.

Consequently, this tender includes [XX, identifier number] **Schedule of Environmental Management** (Attachment 1 – page 5-6 of this document) which is to be completed by the tenderer and returned with the Tenderer's response.

Failure to submit a response to [XX] Schedule of Environmental Management will constitute a non-conforming tender.

Key terms and outcomes

Notwithstanding any other requirement in the contract, the [*project owner or principal under the contract*] requires all construction works associated with its properties or projects to take adequate consideration of and demonstrate compliance with the following outcomes:

- efficient use of energy including electricity, gas and other forms of energy consumed in the property

- conservation of water and promotion of water and wastewater recycling and reuse
- avoidance of materials or construction processes that are toxic or create undesirable emissions or discharges
- reduction of solid waste from construction activity being disposed of in landfill through increased reuse, recycling and waste avoidance practices
- compliance with all relevant Federal and State environmental laws, regulations and standards of good practice, as well as local government development approval conditions.
- the implementation of a structured and systematic process within construction projects to achieve the above and demonstrate an adequate level of environmental due diligence, and
- if specified, the completed works will achieve the desired Green Star rating or NABERS rating (including NABERS Energy).

Tender requirements

All Tenderers are required to provide:

1 details of relevant experience – listing projects and briefly describing relevant experience brought to this project

2 a minimum of two written references from current or previous clients where the Tenderer undertook a similar scope of work

3 a copy of the Tenderer's Environmental Policy (or similar)

4 a copy of the Tenderer's Environmental Management System (EMS) or similar system that details:
  – how environmental risks are managed within the Tenderer's business activities (not limited to this project)
  – the approach to identifying responsibilities for environmental management within the Tenderer's company
  – the nature and extent of environmental awareness and skills training provided to staff and contractors, and
  – measures implemented by the tenderer to monitor and report on the company's environmental performance.

5 details of the Tenderer's understanding of sustainability in relation to the Australian construction industry and of the National Australian Built Environment Rating System (NABERS) and/or the Green Building Council of Australia's Green Star rating system

6 details of the Tenderer's performance in relation to environmental regulations over the last five years including any judgements against the tenderer under any State or Federal environmental legislation

7 details of the Tenderer's environmental and social sustainability reporting (including corporate responsibility and governance initiatives)

8 details of the Tenderer's environmental performance and experience on similar projects with respect to the key outcome areas noted in this tender, section [XX] Schedule of Environmental Management.

9 details of the Tenderer's proposed approach to environmental management of the works under the proposed contract, specifically: [one or both of the following]:

  a) an Outline Environmental Management Plan (OEMP). The OEMP should be an **overview** only of the approach to be taken to achieve a high level of performance in project outcomes including energy efficiency, water conservation and reuse, waste management, noise management, indoor

air and environment quality, pollution minimisation and, where defined in the contract, the project's target environmental ratings. The OEMP should include an overview of the allocation of responsibilities within the Tenderer's team, training of staff, management of subcontractors' environmental performance and project monitoring and progress reporting.

b) an Outline Waste and Recycling Management Plan (OWMP) including an **overview** only of the approach to be taken on waste minimisation, reuse, recycling and waste disposal by the Contractor, and any subcontractor or supplier managed by the Contractor, including actions to be taken to divert waste from disposal.

10 details of the Tenderer's intention to comply with an Environmental Impact Assessment (EIA) or Social Impact Assessment (SIA) where required

[Note to contract documenter: Include both (a) or (b) above, or choose one of them, subject to the scope of work and extent of potential environmental risks. Confer with the project manager for direction as necessary.]

Note to tenderer:

The Outline [EMP/WMP] is to include an **overview** only of the structure and scope of issues to be addressed and the general approach to be taken by the tenderer to integrate the plan into the Tenderer's project management structure. It is not expected to include significant project-specific detail on methodology, actions, work instructions, progress reporting etc. Providing a copy of a similar plan for a previous project by the tenderer would be helpful.

The selected Contractor will be responsible for completing the plan in sufficient detail to enable it to be approved for use by the Superintendent or Client's Representative prior to commencement of the Contract.

Part B: Contract requirements – Environmental Management

Note: This section contains the additional environmental requirements that the successful Tenderer (the Contractor) must comply with during the course of the contract.

XX–01: Detailed Environmental Management Plan (DEMP) [or Detailed Waste and Recycling Management Plan (DWMP)]

The Contractor shall be required to prepare and implement, to the satisfaction of the Superintendent or Client's Representative, a detailed Environmental Management Plan (DEMP), or where agreed, a detailed Waste and Recycling Management Plan (DWMP).

No contract activities, other than those deemed by the Superintendent as not having any environmental consequence, shall commence until the completed DEMP or DWMP is accepted by the Superintendent.

The DEMP shall address all environmental performance areas and environmental outcomes described or specified in the contract with particular reference to key performance areas such as environmental ratings or other defined initiatives in energy and water conservation, waste minimisation; noise and dust mitigation, indoor air quality, protection of the natural environment, as well as compliance with any relevant or applicable statutory environmental requirements.

The DEMP shall also include:

- standard work practices that manage risks in these key performance areas, and
- measures the Contractor will take to monitor, audit and report progress to the Superintendent.

The DEMP shall be an integral component of the Contractor's project management system, and progress against it will be regularly reviewed by the Superintendent.

Where required within the DEMP (or where agreed as being in lieu of the DEMP) the Detailed Waste and Recycling Management Plan (DWMP) is to include as a minimum the following:

- the project's waste minimisation objectives
- the quantities (by weight and volume) of each waste stream generated on site and the proposed reuse, recycling or disposal method
- the proposed waste collection and disposal contractors, including the recycling contractors
- waste management measures to reduce waste disposed
- the waste and recycling management responsibilities of the head Contractor and subcontractor/supplier
- the subcontractor and suppliers' Waste and Recycling Plans (if deemed necessary), and
- the proposed waste and recycling performance monitoring and reporting procedures.

XX–02: Environmental rating initiatives

Where an environmental rating (e.g. NABERS or Green Star) has been determined during the project design stage, the Contractor is to ensure the following:

- the rating is achieved in relation to works under the contract
- initiatives are not altered without the approval of the Principal or Superintendent
- all documentation required to support a formal submission for the environmental rating (as applicable) is collated and made available, and
- where instructed, the Contractor is to obtain the required rating certification from the relevant certification or accreditation authority.

Attachment 1: [XX] Schedule of Environmental Management

[XX] Schedule of Environmental Management

[for inclusion in tender documents]

[Tender no. ######]

[Tender name]

Company information	
Company name and contact details:	

1 Relevant experience:

List projects the Tenderer has undertaken that demonstrate relevant experience	Value ($)
a.	
b.	
c.	
d.	

2 References: provide written references from at least two recent clients demonstrating company environmental commitment and experience.

	Company 1	Company 2	Company 3
Client:			
Contact name:			
Phone number:			

Environmental policy and environmental management:
Attach supporting information as necessary.

3	Tenderer's Environmental Policy	
4	Tenderer's Environmental Management System (EMS) or similar system (see 'Tender requirements – Clause 4')	
	Describe how environmental risks are managed within the Tenderer's business activities (not limited to this project).	

	Describe environmental awareness and skills training provided to Tenderer's staff and contractors.	
5	Describe the Tenderer's understanding of sustainability in relation to the Australian construction industry including the NABERS and Green Star rating systems	
6	Describe the Tenderer's performance in relation to environmental regulations over the last five years including any judgements against the tenderer under any State or Federal environmental legislation.	
7	Describe the Tenderer's environmental monitoring and corporate reporting (e.g. sustainability reporting processes).	
8	Describe the Tenderer's environmental performance and experience on similar projects with respect to the following key outcome areas: [list them here].	
9a	Provide an Outline Environmental Management Plan as per minimum scope detailed in Tender requirements Clause 9a.	

and/or

9b	Provide an Outline Waste and Recycling Management Plan as per minimum scope detailed in Tender requirements Clause 9b.	
10	Describe how the Tenderer will comply with an Environmental Impact Assessment (EIA) or Social Impact Assessment (SIA) where required	

[Note to contract documenter: Include both (a) or (b) above, or choose one of them, subject to the scope of work and extent of potential environmental risks. Confer with the project manager for direction as necessary.]

(Adapted from Australian Government Department of the Environment, Water, Heritage and the Arts.)

Worksheet 4.2B

Environmental evaluation of project tenders

This is an example only – adapt this Worksheet to suit your organisation's requirements.

Section A: Company information

Company name:			
Type of business:			
Street address:			
Mailing address:			
Principal contact:		Phone:	Email:

Description of work under the Contract

Briefly describe:	
Applicable property:	

Section B: Relevant experience

Rate jobs listed by tenderer against relevant experience	Job listed by Tenderer		Experience	
			Adequate	Inadequate
	1			
	2			
	3			
	4			

Has Tenderer worked on other [client] projects or properties in the last 3 years? If so, are there any concerns that need to be addressed?	

Environmental references provided by Tenderer

	Company 1	Company 2	Company 3
Type of service provided:			
Client:			
Contact name:			
Phone number:			

Reference followed up (Y/N)			

Section C: Evaluation criteria

	Criteria	Ex [1]	Ad [2]	Inad [3]	Comments
	C1 Company policy and management				
1	**Policy** – Company environmental or sustainability policy that clearly identifies the vision, objectives and commitment of the company (keep copy on file).				
2	**Understanding** – Degree to which the Tenderer understands sustainability in relation to its industry sector and its activities.				
3	**Environmental Management System** – EMS or similar system (e.g. Quality Assurance) that describes how environmental risks to the company are effectively identified, managed or mitigated.				
4	**Responsibilities** – Are responsibilities and accountability clearly defined within the company's management system to cover principal areas of environmental risk?				
5	**Regulatory compliance** – Any environmental or workplace penalties or infringements in the last 5 years?				
6	**Training** – Adequacy of environmental awareness and skills training provided to company staff.				
7	**Monitoring & reporting** – Adequacy of the company's environmental monitoring and corporate reporting processes (e.g. sustainability or corporate responsibility)				
8	**Environmental experience** – Capacity to demonstrate previous successful experience in environmental management and project-specific environmental outcomes.				

[1] Able to demonstrate **excellent** performance – above average capability or experience
[2] Able to demonstrate an **adequate** performance – acceptable minimum
[3] **Inadequate** performance – unable to demonstrate an acceptable minimum performance

Section C: Evaluation criteria

	Criteria	Ex [1]	Ad [2]	Inad [3]	Comments
	C2 Project environmental management plan				
9a	**Environmental management** – Adequacy of the outline EMP[4] submitted with the tender response. [if an EMP is required in the contract]				
	Environmental responsibility – Does outline EMP allocate responsibility and accountability to project staff, including using staff with appropriate skills and experience for the project needs?				
	Environmental training – Has the Tenderer completed induction training for this property?				
	Management of subcontractors – How well does the Tenderer commit to managing subcontractors and major suppliers to achieve the project's environmental objectives?				
	Energy management – Measures the Tenderer will take to minimise energy use when on the property.				
	Water management – Measures the Tenderer will take to minimise water use when on the property.				
	Waste and recycling management – Adequacy of the typical WMP[5] provided with the tender response.				
	Noise management – Measures the Tenderer will take to minimise noise disruption to building occupants.				
	Air and indoor environment quality management – Measures the Tenderer will take to avoid toxic or nuisance emissions (e.g. dust) and maintain indoor air quality standards.				
	Monitoring – Adequacy of the proposed project environmental monitoring procedures.				

[4] EMP – Environmental Management Plan
[5] WMP – Waste and Recycling Management Plan

Section C: Evaluation criteria

	Criteria	Ex [1]	Ad [2]	Inad [3]	Comments
	Reporting – Adequacy of project environmental performance reporting procedures or commitment.				
	Other environmental capabilities or experiences offered by the Tenderer.				
	C3 Occupational health & safety				
	Record – From the information provided by the Tenderer, rate the company's OH&S record. Excellent = no lost time injury (LTI) or no medical treatment cases (MTC) in last 12 months. Adequate ≤ 2 LTI and 2 MTC in last 12 months Inadequate ≥ 2 LTI and 2 MTC in last 12 months				
	Training – Adequacy of staff OH&S training				
	C4 Social (include relevant issues)				
	Other: e.g. Employment initiatives Community initiatives				

Assessor's name:		Ph:
Comment:	(Brief comment on whether the Tenderer has demonstrated sufficient experience, capability and commitment to meet project expectations and requirements.)	
Contract commitments	(Note detail if award of a contract or pre-registration should be conditional on the Tenderer committing to an action, deliverable or outcome or providing further evidence of capability in a particular area before project start.)	
Recommendation:	(Yes/No – to whether the Tenderer should be considered for the Contract, or pre-qualification registration, based on sustainability criteria).	
Assessor's signature:		Date:

Sustainable fitouts

4.3

Context

Fitouts provide an excellent opportunity to actively work with your tenants for mutual benefit. Both tenants and property owners are increasingly aware of the long-term benefits they can gain by incorporating environmental and social criteria into base building and workspace fitouts, particularly in regard to operational savings. Increased workforce productivity is also emerging as a strong incentive. Given that a 1 or 2% increase in workforce productivity can reap substantial earnings, tenants are keen to use a base building refurbishment (retrofit) or new tenancy fitout to maximise their potential to create a practical, healthy and stimulating work environment.

Tenants who pursue sustainable fitouts are also reporting easier staff recruitment and retention. A sustainable fitout is a clear demonstration of an organisation's commitment to good environmental practice.

Many organisations, particularly major international corporations, are required to report on their sustainability performance. Typically this includes energy use and waste. They are also increasingly concerned to ensure the workplace they provide for their staff is a healthy indoor environment and the correct systems and measures are in place to maintain and improve it through the term of their tenancy. Many companies want to carry out their fitouts to good environmental standards. Achieving good ratings such as Green Star and NABERS demonstrates their performance in sustainability to their internal and external stakeholders.

Helping tenants to take on this challenge early in the fitout planning stage allows the greatest potential for achieving productive and efficient work environments with lower environmental impact at minimal additional cost.

What's in this section

Successful cooperation

'As a building owner and portfolio manager, Investa believes the best outcomes for the organisation and for its tenants are achieved through a cooperative approach. We believe there is a direct connection between the success of our tenants and our long-term investment returns.'

Campbell Hanan, Group Executive, Investa Property Group

Steps: Sustainable fitouts for tenants

The following steps set out how you can help tenants improve the sustainability of their fitout – either office or retail.

1 Engage with your tenants: capacity building

Develop a strategy to raise your tenants' awareness of the benefits of a sustainable fitout. The objective of your strategy is to create opportunities to work with your tenants. Use these opportunities to help them make informed decisions about the environmental and social issues associated with their office or shop fitout. Your engagement strategy might include a range of measures, such as:

- raising awareness by showcasing an example of a sustainable fitout in your building or retail centre which other tenants could visit and learn from
- including sustainable fitout requirements in your building rules or as part of the fitout design approval processes
- negotiating sustainable fitout requirements as part of a 'green' lease
- including sustainability advice as part of the value-added services you provide to tenants.

Make sure your tenants are aware of the sustainability measures you are implementing at a base building level and the important role these play in improving the performance of the whole property. For more information about working with tenants to improve environmental performance see Section 3.4: 'Tenant engagement and green leases'.

2 Identify sustainable fitout initiatives

The following resources could be useful for helping tenants to identify opportunities to improve their environmental performance.

Office accommodation

The *Green Lease Guide* (www.livingthing.net.au/RC_Guide.htm#i16) is particularly helpful for tenants who want to understand what makes up a sustainable office fitout. It also contains helpful tips on improving the environmental performance of ongoing operations, e.g. by selecting efficient office equipment and purchasing recycled content stationery and consumables.

The *Green Lease Guide* provides guidance on:

- environmental rating schemes
- efficient lighting and lighting controls
- floor finishes and retaining existing coverings

Guide for tenants: benefits of a sustainable fitout

The *Green Lease Guide* contains the following advice for tenants:

'The fitout stage provides your organisation with a cost effective opportunity to enhance its reputation, boost employee satisfaction and lock in significant ongoing cost savings.

At this stage you have the opportunity to make decisions that can, at little or no additional upfront cost:

- improve employee productivity and organisational learning
- help you to attract and retain staff
- enhance your corporate image and provide competitive advantage
- reduce your energy bills and other expenses
- minimise your occupational health and safety liabilities.

These benefits all have an impact on an organisation's commercial success and exposure to risks.'

Green Lease Guide, 2007
www.livingthing.net.au/RC_Guide.htm#i16
Investa Property Group in partnership with the Department of Environment and Climate Change NSW, City of Sydney, City of Melbourne and the Institute for Sustainable Futures, University of Technology Sydney.

- partition walls, including modular walls and using existing walls and ceilings
- joinery (doors, built-in furniture, kitchenettes)
- workstations and general office furniture
- energy and water efficient kitchen fittings and appliances
- low emission paints, sealants and adhesives
- water efficient bathrooms and toilets
- efficient supplementary air conditioning
- the benefits of submeters and 'smart' meters
- using indoor plants to improve indoor air quality
- demolition and construction waste management and recycling.

Environmental ratings for office fitouts

Tenants can use environmental rating tools to identify the performance of their fitout e.g. achieving a 5 star NABERS Energy rating for their tenancy or to identify key attributes to include in their fitout design, e.g. the Green Building Council of Australia's Green Star Office Interiors rating. By encouraging tenants to rate their tenancy using an industry-accepted environmental rating tool, you can help them demonstrate leadership and their commitment to achieving sustainable accommodation. You can also encourage tenants to join CitySwitch Green Office – see www.cityswitch.net.au

For further details on the environmental ratings tools see:

- NABERS: National Australian Built Environment Rating System: www.nabers.com.au
- Green Star Office Interiors: www.gbca.org.au

Calculators for retail centres and shop fitouts

The GPT Group has developed a suite of Retail Centre and Retail Tenant Ecological Footprint calculators in partnership with Global Footprint Network and EPA Victoria to help retail centre managers and tenants identify and understand the environmental impacts of design and operational practices. The ecological footprint provides an indication of the amount of productive land required to create, operate and absorb the waste of a particular activity.

Tenants can use these online calculators to quantify the impacts of their store fitout, including their choices of:

- interiors (shop front, walls, wall and floor finishes, ceilings)
- fittings (counters and shelving)
- lighting and power
- transport options.

Using the Retail Ecological Footprint calculator

'The GPT Group uses the Retail Ecological Footprint Calculator to help its tenants understand the environmental impacts of their store fitouts. The GPT Group encourages tenants to reduce their impact by responding with changes in design and operational practices.

All new GPT Group retail tenants are required to use the Retail Ecological Footprint calculator during their design approval process. So far over 200 tenants have used the tool in GPT centres including Rouse Hill Town Centre and Melbourne Central.

The benefits have been demonstrated in both ecological footprints and operating results, with an average footprint reduction of 29% to date. The GPT Group highlighted education and the involvement of all parties – retail design managers and leasing teams – as critical success factors. The Group has also helped tenants ensure their commitments have been implemented by their contractors, delivering further value back to the tenants.'

www.epa.vic.gov.au/ecologicalfootprint/caseStudies/gpt.asp and www.gpttreadslightly.com.au and www.gpt.com.au/content.aspx?urlkey=cr_overview

To download the calculators visit the Ecological Footprint section of the Victorian EPA website: www.epa.vic.gov.au/ecologicalfootprint/calculators/default.asp

The NABERS Energy and Water ratings for retail centres will be available in 2009.

3 Incorporate sustainability into the design phase

Once your tenants are committed to improving the environmental performance of their fitouts, help them to integrate sustainability into their design processes.

Worksheet 4.3A provides a detailed checklist of actions supporting sustainability criteria throughout the whole fitout process, from design and project management through to handover to occupants.

This checklist is not intended to be all-inclusive nor a detailed technical guide. It aims to provide an overview of common design, procurement and construction opportunities as well as emerging issues for good sustainable office design. It can also be adapted for a retail environment. It includes ideas on how to integrate environmental performance into tenants' project delivery systems to focus attention on good environmental design, material procurement and construction delivery.

This information is not an alternative for a sustainable design rating of an office fitout. Assessment tools in NABERS and Green Building Council of Australia's Green Star provide further design and construction advice to design teams and project managers. For information about environmental rating schemes see Section 1.2 of this Guide.

4 Check and report the outcomes

Check that commitments identified during the briefing and design process have been implemented and that systems are in place to ensure that optimum ongoing performance will be maintained. This is particularly important if the fitout is to be marketed as 'green'.

Celebrate the achievement and use the fitout as a showcase for other tenants in the building or retail centre so that knowledge gained from the project can be shared.

Sustainable Design Plans

Incorporating sustainability criteria into a fitout design phase can be managed using a Sustainable Design Plan. The following criteria could be incorporated into the project brief or Sustainable Design Plan for an office or retail fitout:

- Avoid unnecessary waste creation in strip-out and construction activities.
- Increase use of second-hand, recycled and recyclable materials, reducing the quantity of waste sent to disposal.
- Avoid construction techniques that reduce potential for reuse or recyclability of materials (e.g. use screws instead of adhesives).
- Reduce longer-term environmental impacts by considering the life cycle impacts when selecting fitout materials and finishes.
- Avoid materials and practices that may harm the environment or building occupants.
- Reduce utility costs through efficient use of energy and potable water.
- Improve indoor air and environment quality.
- Improve workplace morale and productivity.
- Reduce the cost of doing business.

See section 4.1 and worksheet 4.1A for detailed information about Sustainable Design Plans

Waste and churn

'Make good' clauses in leases often lead to significant wastage of materials such as carpet, light fittings and furnishings. Work with your tenants to identify opportunities to leave fixtures and furnishings in good condition for reuse by future tenants or to determine which elements of the previous tenancy fitout can be reused. This approach can result in significant cost savings for you and your tenant.

Green Lease Guide 2007
www.livingthing.net.au/RC_Guide.htm#i16

Further information

In addition to using knowledgeable environmental designers, other sources of information include:

- NABERS, www.nabers.com.au
- Green Star Office Interiors Tool, Green Building Council of Australia, www.gbca.org.au
- Property Council of Australia, www.propertyoz.com.au
- *Green Lease Guide*, www.livingthing.net.au/RC_Guide.htm#i16
- *The Tenant Energy Management Handbook*, www.nabers.com.au
- Ecological Footprint Calculator, EPA Victoria, www.epa.vic.gov.au/ecologicalfootprint/calculators/default.asp.
- ecospecifier (lists over 3,000 environmentally preferable materials, products, resources and technologies; also a portal for eco-materials research), www.ecospecifier.org
- Healthy Building Network, www.healthybuilding.net
- Forest Stewardship Council, www.fsc.org
- The Wilderness Society sustainable purchasing guide to choosing environmentally friendly building materials and paper, www.wilderness.org.au/articles/sustainable-purchasing
- *The Aurora Guide* (compiled by RMIT Centre for Design), environmentally preferred building materials, www.cfd.rmit.edu.au/content/download/336/3209/ file/Aurora_GuideL.pdfdownload/336/3209/file/Aurora_GuideL.pdf
- Good Environmental Choice, Australian Environmental Labelling Association (AELA), www.aela.org.au
- *ESD Design Guide for Offices and Public Buildings*, Australian Government Department of the Environment, Water, Heritage and the Arts, www.environment.gov.au/settlements/publications/government/esd-design/pubs/esd-design-guide-introduction.pdf
- *ESD Design Guide for Australian Government Offices* (Edition 2) 2006, www.environment.gov.au/settlements/publications/government/esd-design/index.html
- Sustainable Choice, a NSW local government sustainable procurement program, www.lgsa-plus.net.au/www/html/956-sustainable-choice.asp
- CitySwitch Green Office, www.cityswitch.net.au

Worksheet

Review and use this Word document:

4.3A Checklist for sustainable fitouts

Worksheet 4.3A

Checklist for sustainable fitouts

	Applicable (yes/no)
Planning phase	
Objective: To identify and integrate into the project, through a systematic process, a sustainability vision for the building fitout consistent with the core values, policies and commitment of the tenant organisation or building owner.	
Agree on a sustainability vision for the project	
Identify the sustainability vision and desired outcomes for the project. Focus on practical and achievable outcomes that will allow the fitout to demonstrate the organisation's commitment to sustainability. Include this information in the project manager's brief and the tender documents for the design team.	
Consider benchmarking against existing industry rating tools such as Green Star Office Interiors or NABERS Energy.	
Use a competitive tendering process to engage a design team (and project manager if necessary) with the appropriate skills and experience for achieving the sustainability vision.	
Integrate vision into project design brief and budget	
Incorporate the process of exploring, discussing and confirming agreed sustainable design initiatives into the project design brief. (See the design phase recommendations regarding a Sustainable Design Plan, below.)	
Make sure the brief addresses space planning and density requirements including workspace allocations and flexible working arrangements. Flexible working arrangements should consider capacity to 'hot desk', moveable walls to support multiple space uses, and maximisation of open plan environments. Consider how IT infrastructure, computer specifications, cabling access to workstations and the use of laptops instead of desktops could increase flexibility, promote productivity and reduce cable wastage.	
Set a Green Star Office Interiors rating as part of the project vision	
Determine a preliminary budget for realising the sustainability vision and make sure this is included in the project budget. Capital allowances should recognise the whole-of-life financial savings (e.g. reductions in energy costs) likely to be achieved through environmentally responsible design.	
Identify how outcomes will be measured	
Develop the key performance indicators for measuring environmental and workplace achievements. Where possible work out a whole-of-office baseline so comparisons can be made between the working environment pre and post fitout. Refer to Green Star Office Interiors for potential indicators.	

	Applicable (yes/no)
Depending on the lease structure, relevant indicators could include consumption of energy (electricity and gas) and water per square metre (or person), costs of utilities per square metre, indoor environment quality measures and quantity of waste created and recycled in the working environment. Other indicators could include sick leave attributed to working conditions, staff morale, annual productivity, staff working hours and staff retention rates. Some initiatives may be achieved for no or small additional cost.	
Explore opportunities for the lease	
Discuss opportunities to achieve 'win-win' sustainability outcomes with the managing agent e.g. opportunities to incorporate energy efficient initiatives for both the base building and the tenancy in the lease, or core building upgrades that give the tenant greater control of indoor comfort and lighting without imposing unacceptable costs on core building services. Consider a 'green lease' to formalise shared benefits and allow the tenant to be represented on the building management committee. It may also assist in the Green Star rating process.	

Design phase

Objective: To put together a design team and facilitate a design process that rewards innovation and systematically addresses and evaluates design options for achieving the sustainability vision within the available resources.	
Selecting and briefing the design team	
Evaluate tender responses to the design brief and select a team based in part on their understanding of your vision and their capability and experience with sustainable design. Look for innovation in past projects, familiarity with green building design tools and team cohesion. Consider a specialist environmental design facilitator to coordinate the sustainable design process.	
Integrate sustainable design into the design process	
Develop a Sustainable Design Plan (SDP) as a component of the project brief. The design team should develop this further and use it to facilitate the design process. See Section 4.1 of this Guide for further detail.	
Where appropriate, consider using criteria in Green Star Office Interiors and NABERS to focus aspects of the design effort. Make sure the design team is familiar with Green Star and NABERS and recognises its role in identifying and achieving good environmental design as modelled in Green Star and NABERS.	
Allocate responsibility for using the SDP as a facilitation tool to a key member of the design team. This could be the project manager, lead architect or specialist environmental facilitator. Alternatively, consider using an accredited Green Star professional (essential if a rating is to be undertaken) to support the design process.	

	Applicable (yes/no)
After preparing the SDP, this person's initial task could be helping to brief the design team before design process begins to make sure the team members understand what is expected of them.	
Make sure the design phase timeline adequately recognises the time that will be required to explore environmental design options.	
Encourage the team to seek innovative solutions to desired design outcomes. Make sure the whole life cost of design alternatives are properly considered so the client can make informed decisions when looking at trade-offs between capital costs and longer-term operational savings.	
Investigate technologies, products and materials that can help improve the environmental performance of the fitout.	
Where feasible, use computer analysis, life cycle assessment and life cost modelling to test design options.	
Sustainable design reviews and design considerations	
Undertake regular and scheduled sustainable design reviews. Use the SDP as a reporting tool to make sure these design reviews are given appropriate attention from the outset. They should be part of the scheduled design team meetings wherever possible to involve all of the design team members. See Section 4.1: 'Sustainable building through design management'.	
Involve key decision makers in the design reviews. Make sure they understand the design intent well enough to be able to explain it to their senior management and staff.	
Adopt passive design solutions wherever possible, such as maximising natural light and ventilation, providing all occupants with access to views and installing stairs for internal circulation where practical. Optimise use of natural light through features such as internal light shelves, reflective wall finishes or internal operable blinds.	
Investigate capacity for optimising use of energy efficient lighting and lighting controls that allow flexibility for the occupants. If feasible, consider using multiple lighting zones to accommodate efficient after-hours lighting. Consider controls that can reduce the energy consumption of fluorescent lights after start-up.	
Where tenant HVAC is proposed, make sure high efficiency equipment is used with controls that reflect the required usage periods.	
Encourage the designers to explore all feasible options for using environmentally friendly fitout materials and finishes with proven low indoor air quality risks. See Section 3.8: 'Managing indoor environment quality'.	
Where desirable, optimise flexibility in the workspace. For example, consider whether moveable wall systems could be used to adapt spaces for a variety of uses.	

	Applicable (yes/no)
Check the design team obtains and critically reviews any certification or documentation provided by material or product manufacturers that claims stated levels of environmental performance e.g. timbers from sustainable forestry sources. Give preference to products or materials with third party certification e.g. the Australian Environmental Labelling Association's Good Environmental Choice label or a listing with ecospecifier. Seek explanations of any environmental claims made by suppliers, including performance documentation.	
Make sure material durability is commensurate with the life expectancy of the fitout. Choose durable, long-lasting materials over short-lived alternatives.	
Optimise use of materials that have a high proportion of recycled content or are known to be readily reusable or recyclable at the end of their useful life.	
Consider ease of disassembly for fitout partitions and workstations in situations where the lease requires the tenant to strip out and return the space to core facilities. Minimise alterations to the base building. Elements damaged or changed may have to be made good at lease termination. These considerations should be included whether it's the tenant's responsibility to make good or not.	
Check that construction methods do not reduce the reusability or recyclability of materials (e.g. use screws and bolts instead of adhesives).	
Check that equipment and appliances that use water are highly efficient in their water usage. Encourage the building owner to install waterless urinals, rainwater collection devices or greywater reuse technologies where practical.	
Assess and list all materials or building components that should be retained, partially modified, or removed during demolition for sale, recycling or landfill. Targets for material recycling and diversion from landfill should be estimated and included in tender documentation. Optimise retention of materials where practical and desirable—this could include workstations, walling, doors, floor coverings, ceiling tiles and light fixtures.	

Tender phase

Objective: To manage the process for evaluating and selecting products, materials and construction services (and incorporate this in the tender and contract documentation) so the following is achieved: • the construction market is fully informed of the minimum and required environmental quality of products, materials and construction services • opportunities are maximised for market competition to provide environmentally superior products, materials and services • certification is provided for the environmental performance of products and materials • suppliers and contractors are committed to a high level of environmental performance.	

	Applicable (yes/no)
Check that the tender documentation clearly states the desired environmental performance levels of products, materials and fitout based on industry good or best practice. Where possible specify outcomes and the audit trail that will be required, rather than proprietary products. See Section 4.2 'Sustainable projects through tendering' for more detail.	
Make sure the contract documentation, including plans and specifications, is written so as to achieve the project's sustainability objectives. The design team leader or project manager should sign off tender documentation in compliance with project brief requirements.	
Consider tendering arrangements such as alliances or partnerships with subcontractors and suppliers or leasing contracts in which fitout elements such as carpets, workstations and partitioning are leased. A leasing contract should identify environmental standards to be met, including durability, recycled content, recyclability, low emissions, replacement and maintenance requirements.	
Require tenderers to provide information on their past relevant environmental experience, regulatory environmental record, and capacity to commit to project-related environmental actions. See Section 4.2 of this Guide for more detail.	
Provide opportunities for innovation such as encouraging tenderers to nominate alternatives e.g. environmentally friendly materials or construction processes.	
Where reasonable, and particularly for large or complex fitouts, include a requirement for an outline Environmental Management Plan (EMP) with a strong focus on waste minimisation, recycling, pollution avoidance and noise control. This may assist in Green Star accreditation.	
Where the contract works involve a development approval, consent conditions are likely to require that a construction Waste and Recycling Management Plan (WMP) is prepared and implemented by the head contractor, including management of subcontractors' demolition and construction waste.	
Check that contract documentation commits the head contractor to being responsible for the environmental performance of subcontractors and suppliers.	
Check that contract documentation commits the head contractor to regularly report on progress of either the EMP or WMP or other environmental management requirement.	
Check that contract documentation provides for commissioning and tuning to ensure that the performances targeted in the design and documentation are achieved in practice.	
Check that contract documentation commits the head contractor to provide third party certification of any significant environmental claims made for products or materials supplied to the project e.g. sustainable timber sources, chlorine-free material, energy efficient products or materials.	

	Applicable (yes/no)
Demolition and construction phase	
Objectives: To ensure contractual requirements are in place to control or mitigate environmental impacts to air quality, waste, indoor amenity and stormwater and to ensure the sustainability objectives of the project are effectively delivered.	
Note: There are opportunities within the construction phase to achieve a high level of environmental performance but adequate consideration has to be given and systems set in place during the previous project delivery phases.	
Review any contract variations (particularly alternate products or materials) in accordance with the sustainability objectives for the project as set out in the design brief or Sustainable Design Plan.	
Check that the head contractor produces and adequately implements a Demolition Waste Management Plan (DWMP) detailing how waste will be dealt with, how much will be recycled, reused and sent to landfill, and measures to record actual waste for project performance reporting.	
Check that the contract requires demolition and recycling contractors to obtain and keep detailed weighbridge receipts and records to substantiate waste performance for project records.	
Environmental management	
Make sure the construction phase project manager is capable of and committed to managing environmental outcomes in compliance with the project brief and as set out in the contract and agreed construction Environmental Management Plan or construction Waste and Recycling Management Plan (as applicable).	
Before works begin, ensure the head contractor, the project manager and others (as necessary) meet at the start of the project to confirm the approach to be taken to environmental management including work practices, compounds, material ordering and waste management. Make sure that all people involved understand what is expected of them, their responsibilities and outcomes that need to be reported.	
Monitor progress against the environmental management plans and, in particular, deal with noise abatement and dust suppression. These are often the root cause of complaints from other occupants or neighbours.	
Check that the head contractor and subcontractors are complying with the waste separation and recycling opportunities set out in the construction Waste and Recycling Management Plan – in particular, the collection for off-site reprocessing of demolition materials such as plasterboard, timber framing, metals and carpets. The contract should encourage contractors to minimise offcuts wherever practical.	
If included in the contract, consider the collection for resale of toilet fittings and kitchen or hub furniture and fittings if not appropriate for reuse in the new fitout.	

	Applicable (yes/no)
Check that the building's HVAC system adequately isolates the construction area to avoid dust dispersion throughout the building, and that the AC vents and filters are cleaned after construction.	
If not detailed in development consent conditions, consider undertaking very noisy activity or activity that creates noxious emissions (e.g. some carpet glues, timber floor finishes) after hours or during weekends and work with the building management to ensure where possible that noxious emissions are fully vented.	
Optimise off-site fabrication of fitout components so that waste generation and manufacturing impacts are not occurring on site and are minimised.	
Where the head contractor has established a works compound and material handling area on the property (e.g. in a carpark) check that adequate provision is made for dust, stormwater run-off and safe storage of potentially hazardous materials. The latter should be kept to an absolute minimum.	
Commissioning	
Comprehensive pre-commissioning, commissioning and quality monitoring should be required in the contract and performed by the appropriate contractors, suppliers and trades on site. NOTE: The Property Council of Australia (PCA) recommends the use of independent commissioning before occupation and upon completion of the HVAC and services package or works or the full contract. The PCA also advises tenants to test systems to check they are working as designed and to obtain a commissioning report before formal hand-over. Green Star Office Design and Interiors Tool, Management category, gives credit for tuning and commissioning and provides useful guidance.	

Occupation phase

Objectives: • Provide a safe, stimulating and productive environment for staff and visitors. • Ensure appropriate monitoring of indoor environment quality against recognised healthy building standards. • Optimise opportunities for occupants to be able to control the thermal comfort and level of lighting within their work areas. • Ensure occupants understand the environmental features of their fitout and are aware of their individual responsibilities, particularly regarding energy use and waste recycling. • Where appropriate, implement a plan to manage and monitor energy consumption and waste recycling in tandem with the building manager's facility management plans to make sure core building environmental management supports the tenancy objectives, and vice versa.	

	Applicable (yes/no)
Raise awareness and define responsibilities	
Upon occupation, staff should be inducted into the operational features of the building and fitout and made aware of the environmental benefits of facilities such as lighting and comfort controls, waste and recycling systems, etc. Check that initiatives are in place for inductions and ongoing reinforcement so that staff awareness of their responsibility to 'do the right thing' is maintained.	
Make sure the building manager and any building contractors (e.g. cleaners) understand the sustainability features of the fitout. Copies of contract documentation, equipment manuals and work as executed documentation are normally required by the building manager, but they should also be invited to attend the staff induction upon occupation to gain an understanding of why and how certain levels of performance and responsibility are required.	
Environmental monitoring and management (EMM)	
Develop an EMM Plan (or similar) with a focus on ensuring energy use and waste management are within reasonable parameters. This plan could be included in the Office Operations and Maintenance Manual (or similar) and could include data on monthly tenant energy usage provided either by the building manager or via the energy retailer, where metering is provided. Fluctuations in usage above a pre-determined target should be investigated and improvements implemented. Staff may need to be periodically reminded of their role in ensuring the sustainable design features of the tenancy are properly used.	
Make sure appropriate attention is devoted to tenancy waste minimisation including appropriate location and signage for waste and recycling bins, and provision of multi-stream bin stations (paper, recyclables and residual waste). Collect monthly information from the building manager on waste and recycling collected from the tenancy, or where this is not readily identifiable, undertake periodic waste audits to quantify waste generation, recycling and levels of recycling stream contamination. Implement measures to ensure staff consider waste minimisation as a 'business as usual' activity. Consider specifying office materials and consumables that have low environmental impacts including minimal packaging.	
Minimise the use of toxic cleaners and pest treatments. Use natural cleaning products where possible. Use non-toxic pest treatment, rather than introducing poisons into the workplace, and integrated pest management if further treatment is required.	
Consider purchasing a percentage of GreenPower or similar from your energy retailer. This has the potential to significantly reduce your greenhouse gas emissions.	
Retain records of performance, particularly energy consumption where metering is provided. This will facilitate an energy efficiency rating of the tenancy by using NABERS Energy.	

	Applicable (yes/no)
Post-occupancy evaluation	
Within 12 months of occupation conduct a post-occupancy evaluation of the HVAC and lighting systems and physical character of the fitout including feedback from staff. Ensure the scope includes elements of the fitout contract as well as the systems and equipment provided by the tenant (e.g. computers, printers etc.) where new equipment is included in the fitout. The evaluation should also determine whether the relevant project sustainability objectives have been achieved and whether there are any indoor air quality issues that need to be addressed by the contractor or building manager.	
Consider undertaking a formal NABERS Energy rating. Check with authorities to confirm the scope of information required and then integrate this requirement into project delivery as early as possible.	
Maintenance	
Tenancy-specific maintenance plans may be desirable. They should be prepared in collaboration with the building manager as part of the tenancy commissioning process. Instigate systems so that tenancy features and tenancy-owned HVAC and lighting systems are properly maintained and integrated, where appropriate, with maintenance activities related to the core building.	
Check that maintenance activities include checking waste and recycling facilities within the tenancy, reviewing cleaning practices and cleaning materials, repainting common areas, replacing light fittings, deep cleaning carpets, checking proper operation of sun control devices either within or exterior to the tenancy, cleaning and repairing mechanical systems installed by tenants, etc.	
Where practical, integrate tenancy maintenance with core building maintenance, e.g. consolidate contracts such as painting and cleaning.	

Sustainable base building refurbishment (retrofitting) 4.4

Context

Refurbishments (retrofits) and fitouts are fundamentally different. Refurbishments are carried out to the base building by the landlord, usually with a long-term focus on the improvement of the building to meet new or changing performance standards and aesthetics. Landlords will spend their money at their own discretion but are increasingly responding to tenant demand for good environmental performance. On the other hand, fitouts are internal building works and alterations to meet the needs of the tenant for the term of their occupation. They are usually paid for by the tenant or funded by the landlord for the tenant.

Refurbishing and retrofitting existing buildings are inter-changeable terms. This type of upgrading is the major area where the industry needs to focus in the next few years, so that existing buildings can compete with green buildings and incorporate energy reduction initiatives. The scene is set for an enormous amount of activity in this area over the next few years as leases end and the competition between new green and existing buildings intensifies.

Existing buildings comprise about 98% of all building stock. Existing buildings have the big advantage of having embodied energy tied up in the building fabric that is being retained, so it does not have to be replaced. With energy, transport and material costs set to increase as the cost of carbon is factored into the economy, existing buildings with good property fundamentals that can be made to meet new environmental criteria will be increasingly cost-effective to upgrade.

This section provides guidance on assessing the potential performance of existing buildings and a framework for establishing a scope for their upgrading.

What's in this section

Steps: Sustainable base building refurbishment

Achieving sustainability in existing base buildings is a complex process. It involves a range of additional criteria such as working around existing occupied tenancies, introducing changes to services while keeping the older services in operation and the risk of discovering and dealing with unforseeable defects. The options available for upgrading may seem too various but, by a thorough and careful process, you can establish a strategy based on the industry measures.

Remember to include expert commissioning advice from the outset, and involve the facility manager throughout the process.

1 Know your building

The industry rating tools (such as NABERS and Green Star) vary in operation and philosophy. Detail in the tools will evolve but it is critical to understand how the underlying principles relate to your building, then you can focus on how your building performs against the various tools.

Use the Property Council of Australia's *A Guide to Office Building Quality* as a matrix, then measure your building's performance against the various criteria. You may need help from both building and building services professionals. Even though your building is 'existing', include measurements against the 'new' specifications. Prospective tenants may compare your building to a new building so you should know how and where you compete. The benefit of knowing the building's performance against the PCA Guide is that any upgrading can be done to that standard, avoiding the common problem of over-performance in some areas and under-performance in others relative to the PCA grading.

Measure current performance against NABERS Energy, Water, Waste and Indoor Environment tools.

Carry out an inspection of the building fabric, where possible. Prepare a schedule of the maintenance and repair work required.

Also check your building's attributes against the measures contained in the Green Building Council of Australia's Green Star tools. Follow developments in these rating systems to access any new tools and measures. Use the Green Star categories as headings for areas to review:

- management
- indoor environment quality
- energy

- transport
- water
- materials
- land use and ecology
- emissions.

Establish how your building performs against each category and subcategory. Be aware of what might be achievable in the innovation category.

2 Establish an upgrade strategy

Having established how your building performs against PCA, NABERS and Green Star, take advice on how tenant demand is changing and what tenants expect from buildings in Australia and around the world. Owners and advisers often fall into a trap of having only a superficial understanding of tenant demand and requirements. The scope of upgrade you choose must dovetail with tenant demand. Look at competing buildings to see the standards of performance and features they provide.

Use the information taken from the review in Step 1 to prepare a comprehensive list of works that could be carried out.

Prepare outline budgets for the proposed works. Also ensure you include the building works required in association with services upgrades, i.e. access, plinths, duct penetrations, making good, etc. Include costs for attending to any maintenance and repair works required. Allow a contingency for unforseeable defects.

Determine how the works can be carried out while the building is in operation.

Analyse the list, putting the various works into priority.

Consult with an expert in commissioning or tuning buildings and ensure this role is included from the outset. Seek the commissioning expert's opinions on the targets and ensure they are on the team and consulted regularly from establishing the scope right through until the systems are up and running and tenants are using the building.

You will be unlikely to carry out all of the works at one time as there will be constraints of funding, keeping the building operating for the tenants, lease expiries and profile, etc. Examine costs and value against the long-term benefits. Review the options against likely tenant requirements. You may need to employ value engineering to provide structure for your decision making.

3 Summary of the refurbishment process

1. Schedule the performance of all elements that affect NABERS Energy and Water ratings e.g. all services impacting energy and water consumption – mechanical services, hydraulic services, electrical services. Provide an initial assessment of the current star rating under NABERS Energy, Water, Waste and Indoor Environment rating systems. At this stage a formal rating may or may not be required.
2. Prepare a table for upgrading according to each of NABERS Energy, Water, Waste and Indoor Environment ratings.
3. Schedule the performance of all elements that may affect the building's existing performance against your requirements in the Green Star categories. Establish a list of potential improvements.
4. Schedule the performance and statistics of the building against the PCA's *A Guide to Office Building Quality* and work out the Grading of the building. Assess the potential for improvement.
5. Provide an assessment of the works required to upgrade the building to a particular Grade in accordance with the PCA's *A Guide to Office Building Quality*.
6. Prepare a comprehensive list of all possible upgrades and consider the strategy on how these may be achieved.
7. Prepare a schedule of the maintenance and repair work required.
8. Establish costs to achieve all possible works being considered. Include a contingency.
9. Establish a value engineering study of the various possible upgrades to arrive at a scope for refurbishment. Include market knowledge in your decision making. Work out a realistic time frame in accordance with lease expiries, marketing requirements, management cost reductions (i.e. energy reduction initiatives) and available funding.
10. Include commissioning expertise:
    - when setting the performance targets, including green ratings
    - when scoping and documenting the works
    - when checking the installation is proceeding correctly
    - at Practical Completion
    - at least during the period between Practical Completion and the achievement of ratings, or ongoing as part of building management.

Further information

In addition to using knowledgeable environmental designers, other sources of information include:

- Property Council of Australia, www.propertyoz.com.au
- Green Star Ratings Tools, Green Building Council of Australia, www.gbca.org.au
- NABERS, www.nabers.com.au
- *Existing Buildings Survival Strategies – A Toolbox for Re-energising Tired Assets,* Arup and Property Council of Australia, www.propertyoz.com.au/Bookshop/Book.aspx?p=52&book=71
- *Green Lease Guide*, www.livingthing.net.au/RC_Guide.htm#i16
- *The Tenant Energy Management Handbook*, www.nabers.com.au
- Ecological Footprint Calculator, EPA Victoria, www.epa.vic.gov.au/ecologicalfootprint/calculators/default.asp.
- ecospecifier (lists over 3,000 environmentally preferable materials, products, resources and technologies; also a portal for eco-materials research), www.ecospecifier.org
- Healthy Building Network, www.healthybuilding.net
- Forest Stewardship Council, www.fsc.org
- The Wilderness Society sustainable purchasing guide to choosing environmentally friendly building materials and paper, www.wilderness.org.au/articles/sustainable-purchasing
- *The Aurora Guide* (compiled by RMIT Centre for Design), environmentally preferred building materials, www.cfd.rmit.edu.au/content/download/336/3209/ file/Aurora_GuideL.pdfdownload/336/3209/file/Aurora_GuideL.pdf
- Good Environmental Choice, Australian Environmental Labelling Association (AELA), www.aela.org.au
- *ESD Design Guide for Offices and Public Buildings*, Australian Government Department of the Environment, Water, Heritage and the Arts, www.environment.gov.au/settlements/publications/government/esd-design/pubs/esd-design-guide-introduction.pdf
- *ESD Design Guide for Australian Government Offices* (Edition 2) 2006, www.environment.gov.au/settlements/publications/government/esd-design/index.html
- Sustainable Choice, a NSW local government sustainable procurement program, www.lgsa-plus.net.au/www/html/956-sustainable-choice.asp
- CitySwitch Greenhouse Initiative, www.cityswitch.net.au

Reporting sustainability outcomes

4.5

Context

Recording and evaluating end-of-project sustainability outcomes will enable your organisation to compare outcomes with intentions. This section contains advice about how to report on the performance of the project against the external and internal sustainability goals and measures set at project commencement, measures in the property industry and those of similar projects carried out by your organisation for similar building refurbishment or fitout projects.

Your project completion report needs to document the benefits achieved, the cost of achieving those benefits and the justification, or otherwise, of the original sustainability business case. Information gained from this reporting process should be integrated back into your organisation's knowledge retention system and made available in formats that suit knowledge transfer to future projects and project teams – also property management. This information can also be helpful when promoting sustainability achievements to stakeholders. Many aspects of sustainability, both environmental and social, will be ongoing, even after 'practical completion'. The cyclical nature of achieving and maintaining building performance and ratings is interconnected with the concept of the project delivery continuum, as discussed in Section 4.0 Overview. See also Section 3: 'Sustainability and Property Management'.

The key performance indicators used to track and measure sustainability performance should be consistent across projects and should dovetail with standard performance reporting criteria used by property organisations. These include the usual financial parameters of return on investment and savings in outgoings, but should also include other aspects of sustainability consistent with the goals and values of your organisation. Environmental performance improvement is not a one-off event but a series of incremental steps.

What's in this section

Steps: Reporting outcomes

1 Identify reporting indicators

Avoid reporting performances solely based on the easy availability of data. Reporting criteria should be meaningful and useful for project comparisons, fund and portfolio management and future investment decisions. Reporting might involve any number of the following indicators:

- achieving an industry 'green building' standard, such as a Green Building Council of Australia Green Star rating, or National Australian Built Environment Rating System (NABERS) rating
- achieving a quality standard, such as the Property Council of Australia's Premium or Grade A standard, as set out in its publication *A Guide to Office Building Quality*
- achieving or exceeding an agreed environmental benchmark, either set by industry (e.g. Sydney Water best practice water efficiency rate) or an organisation's own standard (e.g. above average energy, water or waste efficiency, expressed as X/m^2 NLA or GLA)
- comparing well against a fund or portfolio's average cost of operations for utilities, expressed as \$X/m^2 NLA or GLA
- winning recognition from external stakeholders, such as industry environmental awards or investment interest by ethical property funds
- comparing well against property performance measures such as speed of re-leasing refurbished space (especially when compared with competing space), tenant retention and tenant satisfaction (data from a tenant survey)
- demonstrating compliance with your organisation's sustainability policy or strategic sustainability goals, or
- other criteria specifically selected for the project e.g. successful piloting of waterless urinal technology or innovation in an aspect of project environmental management, e.g. use of an environmental tender specification tool such as Worksheet 4.3: 'Checklist for sustainable fitouts'.

Remember to add benefits that were not foreseen or expected when the project was scoped.

When selecting your sustainability performance indicators consider factors such as shareholders' requirements, risks to business activities, environmental compliance requirements and due diligence requirements.

Identify your reporting indicators as early in the project as possible. Systems need to be set up so that project participants can collect data and track performance.

2 Develop a reporting format

Worksheet 4.5A is an example of a project completion sustainability report. Adapt this to summarise the outcomes of your planning, design and construction processes and relate those outcomes to your organisation's corporate or project sustainability objectives.

Reporting frequency

Reporting of outcomes can be staged. They can be reported as estimates during the design phase, measurements during construction, and measurements taken after the occupation and use of the property or the part that has been upgraded or fitted out. Consult fund and portfolio managers on the reporting frequency required and KPIs to be used. There are no set intervals for reporting frequency. Timing should be driven by your organisation's need to know information at specific times in the project delivery process. Typically, the design team should be reporting outcomes using the completed tender-stage sustainable design plan (See Section 4.1). Construction programs typically include regular reporting of demolition and construction waste, with totals reported at the handover of the completed project.

3 Collect and verify data

Responsibilities for data collection and reporting should be shared across the design, construction and project management teams. Data requirements should be included in the design management process, such as in the Sustainable Design Plan (SDP), e.g. estimated greenhouse emissions, and in the tendering process to inform contractors of their data and information reporting obligations, e.g. construction waste recycling performance.

Verify all data provided by contractors and suppliers to confirm its accuracy and completeness.

4 Evaluate outcomes and report to stakeholders

Evaluate the project outcomes and compare them with the outcomes of similar projects undertaken by your organisation. Consider whether it would be useful to share some of this information within your organisation (not necessarily in the same format) so staff and other internal stakeholders are informed about the project having achieved its sustainability goals.

Who receives the benefits?

In your report include information about who receives the benefits. The business case for sustainability in the property sector identifies benefits for all stakeholders. High levels of environmental performance provide benefits for both property owners and for tenants, though they may not share the same benefits.

Reporting can document the real or perceived benefits for tenants. These could include:

- more responsive building management systems
- increased tenant control of indoor environment quality (IEQ) e.g. thermal comfort, lighting levels, fresh air and occupant satisfaction
- more cost efficient lighting and other reductions in outgoings
- creation of a highly desirable office environment attractive to staff and capable of enhancing reputation and workplace productivity.

5 Beyond practical completion – the property continuum

Whether a one-off project, staged works or part of a property portfolio, to be truly sustainable each project should be viewed as part of the property continuum. Key windows of opportunity for setting and achieving higher levels of performance based on sustainability standards will be ongoing, as sustainability awareness increases, legislation changes and higher accountability is demanded by both internal and external stakeholders. (See Section 4.0 Overview and Section 3.1: 'Incorporating sustainability into decision making'.) Achievements will be perceived by the market as successful or not when benchmarked against the rating tools. Rating tools will evolve as awareness increases, legislation changes and property reflecting higher environmental and social sustainability standards is sought. (See Section 3: 'Sustainability and Property Management'.)

Further information

- Green Building Council of Australia Green Star tools, www.gbca.org.au
- NABERS, www.nabers.com.au
- *A Guide to Office Building Quality*, Property Council of Australia, www.propertyoz.com.au

Worksheet

Review and use this Word document:

4.5A Project completion sustainability report.

Worksheet 4.5A

Project completion sustainability report

A project completion report would ideally be prepared when the fitout or refurbishment has been commissioned and operational benefits can be credibly identified. Post-commissioning reporting could take the form of six-monthly reports for the first year of major occupation. This is an example only – adapt this worksheet to suit your organisation's requirements.

Part A – Project summary	
Include a description of the project. As an example include:	
Property type *e.g. CBD commercial, built 1985, 15 floors, 1,200 m^2 floors, total area 21,000 m^2*	
Project type *e.g. refurbishment of 6 floors and base building*	
Scope *e.g. typical floors: upgraded air conditioning, lighting and lighting controls, upgraded toilets, upgraded lift lobby, installed window blinds, installed new carpet tiles, etc.*	
Base building *e.g. chillers replaced including new low-load chiller, chilled beams installed to centre zone, new BMS, lift cars and lift equipment upgraded, CO_2 monitoring, waste management, water reduction strategies*	
Management systems, *e.g. fitout guide upgraded to include environmental performance, environmental management plan, green lease clauses introduced*	
Budget	$ million
Timing *e.g. for scope setting and feasibility, design and documentation, construction lead time, construction time, time to obtain ratings*	
Project team, *e.g. Project manager, designer, services consultant, commissioning agent, leasing agent, managing agent, quantity surveyor, contractor*	
Other aspects to note *e.g. remainder of office floors occupied during works*	
Ratings targeted *e.g. NABERS Energy 4.5, NABERS Water 3.5, NABERS Waste 4, NABERS IE 4*	

Part B – Achievements against sustainability targets		
Describe outcomes against targets set in the Sustainable Design Plan or project brief. Provide documentation to verify:		
Sustainable design and construction targets	**Before upgrade**	**After upgrade**
NABERS Energy		
NABERS Water		
NABERS Waste		
NABERS Indoor Environment		
Green Star		
Property Council of Australia grading		
Pollution prevention		
Greenhouse gas[1] reduction		
Ecological conservation or enhancement outcomes		
Part C – Market response		
Rental levels		
Letting up period		
Valuation capitalisation rate		

Part D – Compliance with organisation policies[2]	
Anticipating and managing risks to the organisation	
Opportunities to improve staff awareness and skills	
Whole-of-life investment returns resulting from the project	
Improvement in project delivery systems, purchasing and management of service providers	
Part E – Other comments	
What was good value?	
What was bad value?	
What would you recommend next time, for *(each of the following)*:	
– set up?	
– management?	
– team make-up?	
– time for engagement of each of the various team members?	
– scope setting and selection?	
– costing?	
– value assessment?	

[1] 1 See the *AGO Factors and Methods Workbook* for the latest greenhouse emission factors (Australian Greenhouse Office, Department of the Environment and Water Resources, www.greenhouse.gov.au/workbook/index.html.
[2] For example, policies on sustainability, environment, OH&S, governance and risk management.

What would you **not** do next time?	
How would you change your approach next time?	
Comment on timing:	
What was difficult?	
What was easy?	
What documentation changes should be made?	
What documentation should be retained?	

What systems changes should be adopted?	
Project manager signature:	Date:
Portfolio manager signature:	Date: