

PRACTITIONER GUIDE

Procuring Sustainably – A User Friendly Guide

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Who Should Read this: All DE staff involved in procurement activities

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Document Aim: This document gives estate practitioners an overview of Sustainable Procurement. It provides guidance on how to procure sustainably. It details the sustainable development requirements that are to be met through all estate procurement activity.

This guide supports wider Sustainable Development policy and links closely to work on:

- Energy efficiency (through the Estate Utilities Board)
- Climate Change Adaptation
- Sustainability and Environmental Appraisal Tools
- Improvement to estate business processes and delivery

This guide will be updated again in the future to reflect further emerging policy including:

- New legislation
- Government Strategy for Sustainable Construction
- Energy certificates for buildings
- Code for Sustainable Homes
- Further changes to the planning system

PROCURING SUSTAINABLY

A USER FRIENDLY GUIDE

**An Estate Strategy & Policy
Practitioner's Guide**



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Section 1: Introduction

1.1 Purpose of this guide

This guide:

- Provides an understanding of Sustainable Procurement;
- Explains why Sustainable Procurement is important for all of us engaged in estate procurement;
- Sets out basic steps to implement Sustainable Procurement policy objectives in estate procurement activities; and,
- Identifies sources for more detailed advice to assist implementation.

1.2 Who is this guide for?

- This guide is essential for all staff across MOD engaged in estate acquisition related roles. Whether developing estate requirements, in a commercial function, a project management role, making investment decisions or in any other procurement related role, all estate practitioners should be aware of, and be applying, the principles and actions outlined in this guide as well as the full suite of mandatory policy relating to this area.

1.3 Key message

- All those involved in estate requirements or procurement, whether in DE, customer organisations or elsewhere in MOD, need to start thinking and acting differently when it comes to estate business. Sustainable Procurement needs to become an ingrained part of our work. It is not optional. In order to deliver energy, water, waste and other targets, and in order to have an estate that is fully operational in the future – despite the impacts of climate change – estate procurement staff need to be making the right decisions now. Work to address the barriers that hamper sustainable procurement is ongoing and adopting these practices should become easier over time.

1.4 Policy drivers

- This guidance is required and driven by:
 - Government Sustainable Procurement Action Plan – Mar 07
 - Transforming Government Procurement – HM Treasury – Jan 07
 - Sustainable Operations on the Government Estate (SOGE) targets – Jun 06
 - MOD Sustainable Development Action Plan – Jun 07
 - MOD Sustainable Procurement Delivery Plan – Jul 07
 - The increasingly demanding requirements of the planning regime – JSP362 Ch3 refers

Where to find out more:	JSP 418 MOD Sustainable Development & Environment Manual
Who to contact:	Phone: ES&P Sustainable Development Team - 01225 885121 E-mail: espsustainability@de.mod.uk

Section 2: Sustainable Development

2.1 Definitions

- Before exploring Sustainable Procurement it is essential to first understand the concept of Sustainable Development.
- The World Commission on Environment and Development defines sustainable development as - '*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*', (Brundtland Report). In other words, our decisions must be dictated by the long term social, economic and environmental impacts and not on short term gain or ease.
- Sustainable development is a fluid concept that will continue to evolve over time but common characteristics underlie the many streams of thought. Sustainable development emphasises the need for:
 - Protection of the environment and our natural resources;
 - Concern for equality and fairness - ensuring the rights of the poor and of future generations;
 - A long-term view - applying the precautionary principle; and
 - An understanding of the interconnections between the environment, economy and society.

2.2 Why is it important to me in my work?

- The evidence that a degrading environment is visibly impinging on our health, economies and security is helping to drive Sustainable Development.
- It is our duty to ensure that we make the right decisions for the long term benefit of the defence estate and its ability to support operational requirements.
- Sustainable Development is now a top Government priority and policy now requires that all Government bodies adopt all possible means for delivering Sustainable Development outcomes through all business activities – for Defence Estates that means through estate management delivery mechanisms.

2.3 Government Approach

- The Government is highly committed to sustainable development and this is currently being driven forward through its Sustainable Development Strategy, '*Securing the Future*', launched in 2005. Targets to achieve Sustainable Operations on the Government Estate (SOGE) were launched in 2006 (these are listed at Appendix D).

2.4 TARGET

- MOD and DE have to meet Government targets for Sustainable Operations on the Government Estate; procurement is a key means of delivering against these targets.

Section 3: Sustainable Procurement

3.1 Definitions

- Sustainable procurement is a process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole-life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment. (Source: *Government Sustainable Procurement Action Plan, March 2007*)
- More simply for MOD: **Sustainable Procurement requires the incorporation of Sustainable Development into all procurement activities.**

3.2 When in the procurement process does it apply?

- Sustainable Development principles must be incorporated into the whole procurement process: defining the need; evaluating options; design and specifying; supplier selection; tender evaluation; contract management; supplier development; and disposal. Sections 4-5 address the actions to be adopted at the various stages of the procurement cycle.

3.3 Why should we seek to procure sustainably?

- It is Government and MOD policy, it is not optional;
- It is an essential part of achieving long-term value for money;
- An increasing number of standards and regulations are driving this agenda – we all need to be ahead of the game;
- Scrutiny and audit of our procurement is increasing in areas related to sustainable development;
- We can influence our suppliers to offer more sustainable solutions and materials; and
- It makes sense for individuals, for DE, for MOD and society in general.

3.4 Government Approach

- Government has accepted the challenge to use its immense buying power (£150 billion worth each year) to deliver sustainable development targets including meeting the challenges of climate change.
- In 2005 Government set up a Sustainable Procurement Task Force to advise on how it could make significant progress on Sustainable Procurement. This Task Force published its recommendations in '*Procuring the Future*' in June 2006. The Government responded to these recommendations by producing the '*UK Government Sustainable Procurement Action Plan*', March 2007. We are now taking forward the actions and policy laid out in this plan.

3.5 MOD Approach and Policy

- It is MOD policy (see JSP 418) that all procurement is sustainable and supports the delivery of sustainable development targets. We need to ensure that our procurement is increasingly low carbon, low waste, water efficient, respects biodiversity and delivers against the full range of sustainable development goals. It is an essential part of whole life value for money.

- MOD procurement policy now requires that specifications should incorporate appropriate sustainability elements. Elements that can be included are shown in this guide.
- In choosing suppliers MOD must select providers that can demonstrate a clear track record in providing sustainable solutions. Companies must demonstrate a clear willingness to assist in achieving progress towards the Government's targets for Sustainable Development and which:
 - Help to achieve reductions of carbon emissions, energy and water consumption, and waste generation and recycling;
 - Help to protect biodiversity;
 - Do not use unsustainable or illegal timber/timber products; and
 - Support and promote sustainable communities.
- To achieve this, MOD Acquisition Policy requires that Sustainable Development criteria is included within the Pre-qualification Questionnaire which is used to select tenderers. Sustainable Development criteria is then further used in the Invitation to Tender/Invitation to Negotiate to aid down-selection to the Contractor/Preferred Bidder.

3.6 TARGETS

- The Government has set itself a target of becoming a leader in Sustainable Procurement in the EU by 2009.
- The Flexible Framework, a self assessment tool, is used to gage the level of achievement of Government departments. MOD has a target to achieve Level 3 of the Flexible Framework by December 2009 (plus Level 5 in one area by the same date).

3.7 An Example of Good Practice

Project Allenby Connaught

The Allenby/Connaught contract was signed in early 2006. Appropriate Sustainability Appraisals set the project on course for good sustainable development delivery. Across TidNBul garrison (Tidworth, Netheravon, Perham Down, & Bulford), the project encompasses 106 buildings with rainwater harvesting systems, 58 with micro Combined Heat and Power (CHP) and 54 with solar thermal. The contract requires that all refurbished buildings are to have Building Research Establishment Environmental Assessment Methodology (BREEAM) "very good" grade certification and all new builds are to have "excellent" grade. Solar panels and combined heat and power plants are utilised at all swimming pools and some buildings, for energy saving measures and rain water harvesting for toilet flushing, to save water. This is an excellent example of a project pro-actively seeking to achieve sustainable development from the outset and making good use of good design, innovation, energy efficiency, renewable energy and environmental management systems. Aspire are also very good at local communications e.g. a very successful Sustainability Design Challenge with local schools and sponsor the Aldershot Army show.



Section 4: Some fundamentals and the minimum standards that must be achieved

4.1 How should you respond?

- Recognise that you should and can act;
- Ensure you understand what sustainable development is trying to achieve and how estate projects can contribute;
- Think about how sustainable development issues and questions can be addressed in your work or project;
- Ensure you are helping to achieve sustainable development targets;
- Use this guidance as a framework, drawing on the more detailed support that is referenced at the end.

4.2 The actions you need to take include:

Action	Responsibility
<p>➤ Requirement. Ensuring that sustainable development issues (environmental, social and economic) are considered at the earliest possible opportunity in the procurement lifecycle and included in the requirement and specification. The estate customer must require that estate projects meet sustainability targets and incorporate sustainability aspects. The benefits of employing sustainable procurement principles will be maximised by taking action as early as possible in the procurement lifecycle. Opportunities to revise and incorporate sustainable solutions should still be pursued at mid-life update etc., however, a late approach is likely to be more time consuming and expensive. It must be noted that these stages are not to be considered as stand-alone and must be considered holistically.</p>	<p>Estate customer and DE team</p>
<p>➤ Appraisals. Ensuring that the appropriate sustainability and environmental appraisals are pursued right from the outset of the project – this should begin alongside development of the requirement. Refer to JSP418 and the MOD Sustainability and Environmental Appraisal Tools Handbook for more details. Sustainability and Environmental Appraisals are required to comply with statutory obligations and MOD policy commitments. Failure to undertake the relevant appraisals can delay projects; evidence that statutory assessments have been conducted will be required by planning offices. Their outputs must be embedded in the project plan and design.</p>	<p>DE team (with assistance from EST)</p>
<p>➤ Risk. Taking a risk-based approach balancing the requirements of cost, impact and performance. Not including sustainable development considerations represents a risk to future estate business and operational outputs.</p>	<p>Estate Customer and DE</p>
<p>➤ Design. Influencing the design stages to ensure that construction and refurbishment projects incorporate sustainable development. Increasingly defence estate projects will have difficulty getting planning permission if they fail to incorporate sustainability.</p>	<p>Estate customer and DE team (seek assistance where required)</p>
<p>➤ Tenders. Ensuring that sustainability criteria are included in the tender process both during the Pre-Qualification Questionnaire and Invitation to Negotiate/Tender stages and that they are given the</p>	<p>DE team and Commercial teams</p>

appropriate weighting.	
➤ Differentiating between suppliers and designers. Generally choosing suppliers that have a clear track record in sustainable development delivery.	DE team and Commercial
➤ Innovating and working together. Encouraging innovation and best practice and communicating the sustainable development agenda as widely as possible by working in partnership with our suppliers and the supply chain.	DE team and supplier/s
➤ Approvals. The drivers and principles for sustainable procurement must be addressed and incorporated when constructing the business case for Investment Approvals Board (IAB) submission or for any approval authority. IAB Guidance now requires that sustainable development issues are fully addressed for all categories of project.	DE team and scrutiny community
➤ Affordability. Some SD elements will require additional capital expenditure. Funding must be identified. Bring to the attention of senior management, instances where affordability is likely to prevent a sustainable option from being chosen. MOD is required to keep a clear audit trail of decisions where sustainable options have not been taken or have been removed. See Appendix C.	DE team and estate customer
➤ Broad view. All MOD staff and suppliers need to take a broad view, not just of the requirement, but what material is used, how it is made, where it is made, by whom, and what we do with it at the end of its use.	All DE procurement teams and suppliers
➤ Data. Incorporating in all new contracts the requirement to provide accurate and consistent data on sustainable development aspects. A new suite of SD Performance Measures is available from ES&P.	DE project teams and Commercial

4.3 Mandatory Minimum Requirements

4.3.1 Construction – Minimum Policy Requirements

- Government and MOD policy commits the Department to delivering sustainable development objectives in all construction projects – Sustainable Construction. Specifically, estate projects will:
 - Meet the standards laid out within the Government’s Common Minimum Standards (CMS) for the Procurement of Built Environments;
 - Follow the principles of the Office of Government Commerce’s (OGC) Achieving Excellence in Construction Procurement Guide 11: Sustainability;
 - Implement policy as laid down in JSP 434, Defence Construction in the Built Environment, and in Better Defence Buildings¹; and
 - Incorporate Sustainable Development targets.

The main project procurement requirements for construction projects are summarised in Section 6.

¹ Part of the cross government Better Public Buildings initiative.

4.3.2 Defence Related Environmental Assessment Methodology (DREAM)

- It is Government policy that “An appropriate environmental assessment process such as BREEAM or an equivalent (e.g. CEEQUAL, DREAM etc.) appropriate to the size, nature and impact of the project must be carried out on all [estate] projects.”
- It is MOD policy to complete appropriate environmental assessments and sustainability appraisals for all new projects. The Defence Related Environmental Assessment Methodology (DREAM) has been developed to meet this policy commitment and Government targets for construction projects.
- DREAM is a web-based environmental assessment tool for defence construction projects. Its aim is to reduce environmental impacts, by encouraging holistic thinking, innovation and best practice. The environmental assessment criteria are focused on the building envelope with specific measurement at the survey, design, construction and operation stages (See diagram below).
- Use of DREAM is now a mandatory requirement for all major construction and refurbishment projects – see link to DREAM website and policy instruction at Appendix E. **All new builds and major refurbishments must achieve a DREAM “excellent” rating.** This is now a Government and Departmental target. Customers must seek to fund projects to excellent standard and requirements must include achieving a DREAM “excellent”.

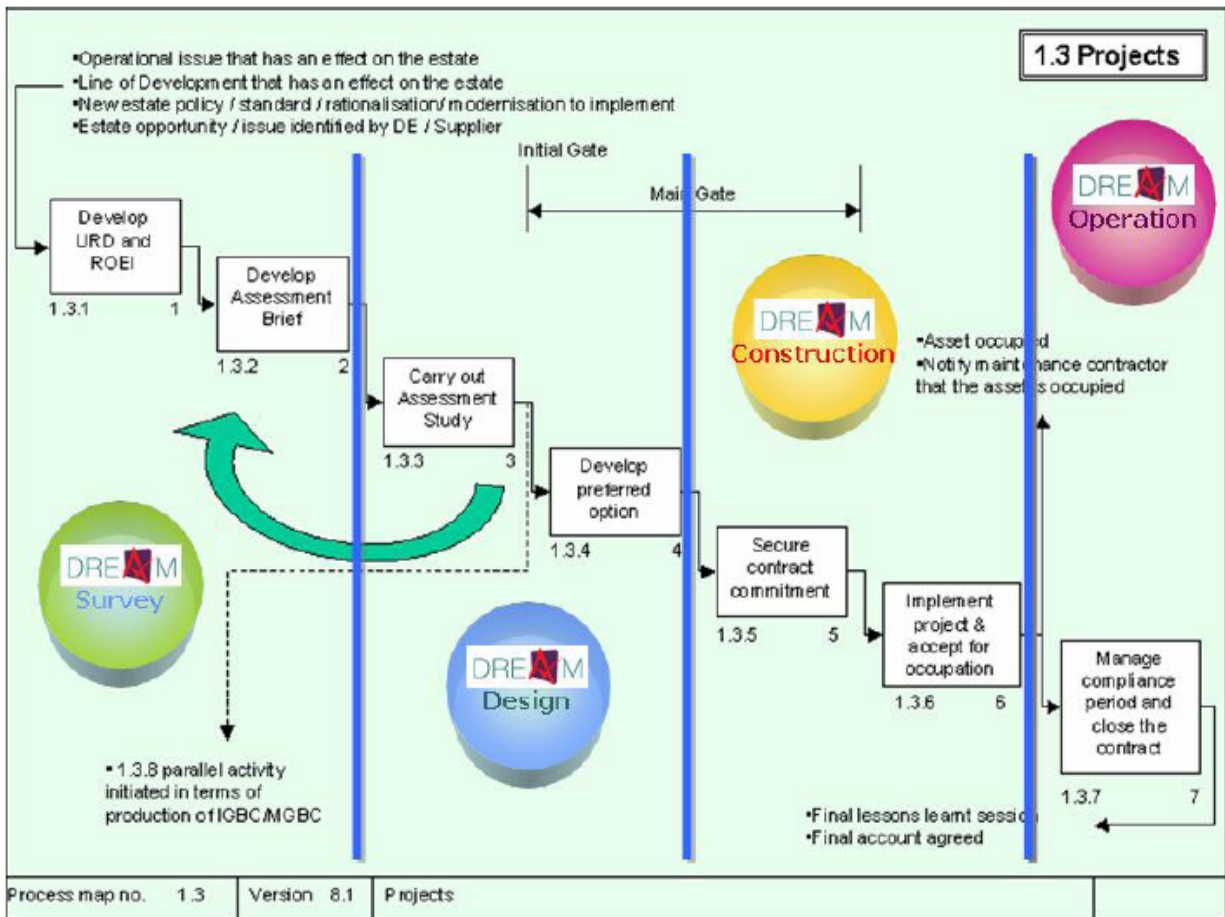


Figure 4.1 – the EMBS Project Process and DREAM

4.3.3 Minimum Environmental Product Standards – ‘Quick Wins’

- Government Departments must apply minimum environmental standards in order to identify and procure products that have a lower environmental impact than equivalent alternatives. To assist departments in procuring sustainable products a number of minimum environmental product standards (called “Quick Wins”) have been identified. These specifications address energy saving, recycled content, carbon emissions, energy consumption in use, volatile organic compounds, organic ingredients and biodegradability.
- MOD is required to adopt these minimum environmental standards and they are therefore mandatory for all estate procurement staff. When purchasing any of the products in the Quick Wins range, the list will tell you the minimum standard you must procure for that product, regardless of the supplier/chain or procurement approach (See Policy Instruction).
- The Quick Wins list covers the following product ranges:

Computer equipment and peripherals	Office electrical equipment (inc mobile phones)
Paper	Wood products
Cars	Gas boilers
Central Heating Systems	White goods
Televisions and DVD players	CHP and large boiler equipment
Lighting systems	Energy control equipment
Thermal screens	Motors and drives
Air conditioning units	Consumables (tissue, bulbs, paints, soil products)
Textiles	Detergents
Various fluids and lubricants	Water using appliances
Glazing	Portable power supplies

- Where contractual arrangements and commercial policy allow, procurers should consider the option of utilising existing MOD or Government contracts for the procurement of these items. Government has used its buying power to obtain excellent value for money across a range of products. Contact appropriate DES&S commodity area/IPT or OGC for further information.
- Auditing of MOD compliance with this requirement is being stepped up. Internally ES&P will also be auditing this and other aspects of Sustainable Procurement.

4.3.4 Contract Specifications

- All MOD contracts are now required to include terms and conditions relating to sustainable development. This includes all contracts for equipment, commodities, works and services. These should be for the life of the contract (and beyond, e.g. in-service and disposal) and should ensure that suppliers adhere to MOD policy on sustainable development and have in place the appropriate sustainable development plans, policies and mechanisms, including an Environmental Management System. The contract specifications must explicitly embed the delivery of sustainable development targets. A list of elements that can form contract specifications is at Appendix B.
- It is preferable to introduce Sustainable Development criteria upfront as part of the project brief

and contract specifications. This action will avoid potential conflicts and ensure that Sustainable Development criteria are fully included in the processes of demonstrating and securing whole life Value for Money for the Department.

4.3.5 Carbon Content and Cost of Carbon

- As a Government Department MOD needs to understand the carbon content of products to inform better decision-making. Although still an immature area, Government is likely to move towards a regime that requires inclusion of the 'Cost of Carbon' in business cases. This will mean identifying the carbon content of a product (i.e. the amount of energy used and the carbon emissions produced in gathering and transporting materials, in manufacturing and in transporting and using the finished product²). This means the relative 'Cost of Carbon' in different products can be used to differentiate between them to assist in finding the most sustainable solution.

4.3.6 Other Minimum Requirements

Timber

- All timber must be from legal and verifiable sustainable sources. See Central Point of Expertise on Timber guidance on www.proforest.net.

Planning System

- Increasingly Local Planning Authorities will use the Planning System to achieve sustainable development outcomes. Under a system proposed by Essex County Council, developers would have to achieve a certain number of 'green points' in order to secure planning permission. By building robust SD requirements into estate projects as normal business difficulty in securing future permissions will be minimized.
- PPS22 Renewable Energy and the "Merton Rule". In October 2003 Merton Council set the following requirement: All new non-residential development above a threshold of 1,000 sq m will be expected to incorporate renewable energy production equipment to provide at least 10% of predicted energy requirements. This approach has now been adopted by a number of Local Authorities and as a general rule is under consideration by Government. We will continue to get some planning conditions that include this type of rule. Local generation of renewables may not always be cost-effective, but planning policies must be adhered to. We can however anticipate that the cost, reliability and efficiency of micro-renewables will improve as the industry matures. MOD estate projects should generally aim for 10% on-site renewable energy as a minimum. Regional variations in policy will need to be considered.

Heritage & Biodiversity

- Protection of MOD's estate-related heritage and its diverse biodiversity is a key part of our overall approach to Sustainable Development. These aspects must be identified, studies undertaken where required, and appropriate protection and enhancement elements included in contracts.

² For example, to fully understand the carbon emissions associated with our television sets, we need to consider not only the electricity used to run them but also the energy used to make and deliver all the parts, and the energy to dismantle, dispose and recycle them afterwards too.

Building Regulations

- All Building Regs must be complied with, Part L contains requirements for energy efficiency. The Building Regulations are likely to become increasingly stringent with regard to SD delivery.

Emerging Legislation

- EU Energy Services Directive: this includes energy usage reduction targets and requires that contracts contain clauses that ensure more energy efficient products, vehicles and buildings. This should be addressed by other elements in this guide but is another key driver for energy efficiency that must be taken into account in estate projects. From April 2008, all new buildings will require an Energy Performance Certificate. MOD must meet new legislative requirements.

MOD Policy

- Policy as laid down in JSP418 and JSP434 must be complied with.

Social Aspects

- Taking into account social aspects should be an essential part of any new estate project. MOD wants sustainable defence communities. This means estate projects must include elements that improve the social environment and support the local community. This means designing in positive social aspects and designing our potential negative aspects. Transport, noise, appearance, social facilities, and security must all be considered. See Section 6 and Appendix B.

- Whole Life Costs(WLC)

Whole life costing is a technique used to calculate the total cost of ownership of an asset over its operating life. Within the construction industry, WLC are sometimes also referred to as 'Through Life Costs' or 'Whole Life Value'.

The 'in development' ISO Standard 15686 part 5, Buildings and constructed assets - Service life planning, defines WLC as:

'a tool to assist in assessing the cost performance of construction work, aimed at facilitating choices where there are alternative means of achieving the client's objectives and where those alternatives differ, not only in their costs but also in their subsequent operational costs.'

It is MOD policy to implement the WLC process and use the appropriate models designed for that project, integrating the SD issues specific to that project (e.g. energy use, water use, heritage etc). There are a number of guidance documents available to project teams to evaluate their project in relation to WLC.

There is no policy or standard regarding the WLC calculation to be used within the MOD. Project SLAM uses a WLC calculation of 35 years. This is due to the materials used within the project having a 30 year manufacturer's guarantee. At present it is the responsibility of the project manager to ascertain which WLC model suits that particular project with the correct calculating period.

The OGC have guidance on whole life costs and cost management which can assist in the delivery of a certain project. The "Achieving Excellence in Construction Procurement Guide" can be found on their website (www.ogc.gov.uk/documents/CP0067AEGuide7.pdf).

Fair Payment

Fair Payment is a process which improves the way contractors and clients operate their financial agreements. It provides certainty over payments allowing contractors to reduce their risks

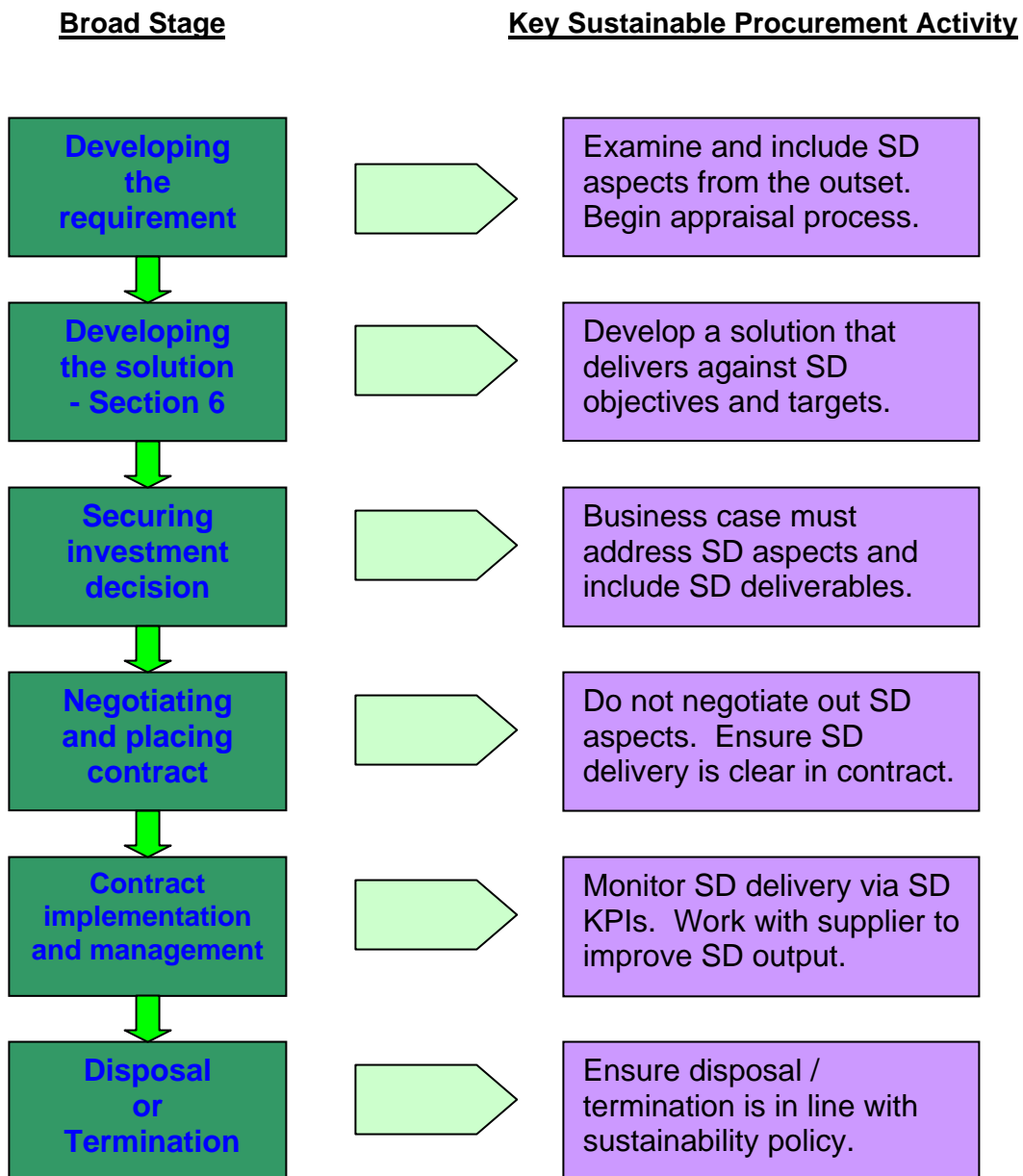
leading to various savings. It is also a chance to build trust and improve relationships.

There are two common ways the principles of Fair Payment can be conducted:

- a) Initiation of a project bank account where the contractor is able to draw money, with agreement from the client, in order to maintain the project.
- b) Production of a non-legally binding Charter is used to provide written agreement that payment will be available to the contractor.

Further information on the issue of Fair Payment is available from the [OGC](#). They have produced a [guide](#) specifically on this issue which provides useful information on implementing the Fair Payment process.

Section 5: Integrating Sustainable Development (SD) in the Estate Project Process



This represents a generic overview and addresses broad actions in relation to a generic project process. DE project teams would need to develop a plan for addressing SD as part of their overall project plan that is appropriate to the type of project/procurement. The table below addresses some of the more specific actions at each project stage.

Figure 5.1 – Overview of procurement stages and SD considerations

Specific actions at each stage of an estate project?³		
<i>Stage</i>	<i>Outcome/Aim</i>	<i>Action/Comment</i>
Stage 1: DEVELOP URD AND ROEI		
Preparation of Statement of Need and/or User Requirement Document (URD)	1. SD core part of URD. Full consideration given to Sustainability issues and the future use of SD Appraisal tools.	1a. Responsibility of author of Statement of Need/URD. Refer to DE ES&P for advice ⁴ . 1b. SON/URD should contain specific desired SD outcomes 1c. Carry out a high level sustainability appraisal using the summary matrix (Found in the SEAT Handbook) to identify Sustainability issues and risks.
Preparation of Rough Order of Estate Information (ROEI)	1. SD considerations are understood and included in ROEI. Broad estimates for SD attributes included. 2. SD and the associated risks/opportunities have been considered on a through-life basis. 3. Appropriate identification of statutory and policy Appraisal requirements with full costing and timelines. 4. Preliminary Sustainability Appraisal (SA) undertaken, supported by Sustainability Advisory Team (SAT) ⁵ .	1a. Complete a summary matrix for each alternative option (Ensure that SD is considered on a through-life basis) 1b. Consider use of recycled materials wherever possible. 1c. Ensure Minimum Environmental Specifications are used wherever white goods and consumables are part of the specification. 1d. Ensure minimum SD Construction Specifications are used where relevant. 2a. Include appropriate resource implications e.g. • Disposal options and costs. • Identify Subject Matter Experts required beyond those in DE. 3a. Identify which appraisals will be required and whether you will need additional resources/consultants e.g. • BREEAM/DREAM /Environmental Impact Assessment (See JSP418) • Archaeology/Appropriate Assessments (See JSP 362, Defence Lands Handbook, Chapters 5 & 6) 4a. Refer to MOD Sustainability and Environmental Appraisal Tools Handbook ⁶ .

³ EBMS provides further advice/guidance on all aspects of Sustainable Development in relation to project processes as does Chapter 17 of JSP 418. This is a broad outline and some elements may happen at different points depending on the approach adopted.

⁴ For policy queries contact the Estate Strategy and Policy Sustainability Team on 01225 449505 or 01225 883523. E-mail espsustainability@de.mod.uk

⁵ For advice on implementation contact Defence Estates EST Sustainability Advisory Team on 94325 4675/ 01980 674675

Stage 2/3: DEVELOP ASSESSMENT BRIEF / CARRY OUT ASSESSMENT STUDY		
<p>Assessment Phase (Assessment Brief/Study)</p>	<ol style="list-style-type: none"> 1. To have in place a more detailed Sustainability Appraisal (by developing preliminary SA) – ensuring SD fully integrated. 2. Regional socio-economic impacts considered and built in 3. SD considerations are understood by all involved. 	<ol style="list-style-type: none"> 1a. Update option matrices undertaken at ROEI stage. Ensure all relevant stakeholders and SME's identified and consulted. 1b. Depending on result, consider additional specialist advice and other Mandatory Sustainability and Environmental appraisals as necessary see JSP 418, Volume 1, Chapter 14. 2a. If there are implications on job numbers or employment locations, to complete a Regional Socio Economic Report (RSER) which will be required at this stage. See JSP418, Volume 1, Chapter 14. 3a. Consider alternative mitigation and utilise design solutions which incorporate best practice Sustainable Construction. Keep disposal/ termination options under review. 3b. Ensure all relevant Stakeholders and Subject Matter Experts are identified and then fully consulted. Failure to do so could lead to a delay in the project. 3c. Undertake DREAM – survey stage
<p>Arrive at preferred option*</p>	<ol style="list-style-type: none"> 1. SD considerations have been appropriately weighted in making final selection. 2. Ensure that statutory environmental assessments are completed 3. Integrated SD considerations – ensure fitness for purpose and user comfort over design life. 	<ol style="list-style-type: none"> 1a. SD results must be seen as a key part of the value which a project delivers not just a desirable add-on – if unsure seek advice. 1b. Where SD items/solutions are not taken forward this should be recorded. 2a. Ensure that any requirements for a Statutory or Non-Statutory Environmental Impact Assessment (EIA) are carried out. <u>Note</u> – Can take 6-8 months for non-controversial projects to proceed through the Town and Country Planning Process with EIA. See SEAT Handbook and JSP418,. 3a. Ensure opportunities have been made to consider innovative environmental alternatives as well as setting minimum

⁶ For information on Appraisal contact ES&P Sus 01225 449359. For copies contact ES&P Sus 01225 883523
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		standards for products, materials, waste etc
Parallel Stage: SECURE APPROVAL / IGBC/MGBC IAB APPROVAL*		
Secure Business Case Approval	<p>1. Appropriate SD considerations included in business case.</p> <p><i>* IGBC will come before preferred bidder selection for stand alone primes. MGBC may come after Stage 4.</i></p>	<p>1a. All business cases must include sustainable options. Where sustainable options are unaffordable there must be a clear audit trail of the decision made.</p> <p>1b. Investment Approvals Board (IAB) confirms that SD Principles have been considered through-life.</p>
Stage 4: DEVELOP PREFERRED OPTION (Detailed Design)		
<p>Develop Preferred Option</p> <p>Issue appropriate Brief/Tender Documents/Evaluate returns</p>	<p>1. SD considerations tailored to the chosen option.</p> <p>2. Appropriate SD question suite and evaluation criteria used. Include the requirement for the Tenderer to produce a Sustainable Development Management Plan.</p>	<p>1a. Ensure opportunities have been made to consider innovative environmental alternatives.</p> <p>1b. Undertake DREAM – design stage</p> <p>2a. Ensure Sustainable Development criteria are included as a section in the Pre-Qualification Questionnaire (PQQ) and the Invitation to Negotiate (ITN)/Invitation to Tender (ITT) to aid down-selection of Contractor/Preferred Bidder.</p> <p>2b. Help and assistance are available from the Sustainability Advisory Team (see footnote 6 below)</p>
Stage 5: SECURE CONTRACT COMMITMENT		
Secure Contract commitment	<p>1. Contractor fully understands his obligations and can produce evidence.</p> <p>2. Contractor has in place a Construction Environmental Management Plan (CEMP) and EMS (see JSP418, Volume 1 Chapter 11).</p> <p>3. Key Performance Indicators/monitoring and audit processes are defined and included in plan with agreed review periods.</p> <p>4. A full Sustainability Appraisal carried out as more information</p>	<p>1a. Contractor has in place a Sustainable Development Management Plan and robust checking and reporting processes.</p> <p>2a. These should have been provided as part of the Sustainable Development Management Plan and must be negotiated/agreed by IPT and Contractor.</p> <p>3a. Ensure opportunities have been made to consider continuous improvement and latest innovative environmental technological advances can be included e.g. gainshare.</p> <p>3b. Identify all additional requirements resulting from assessment.</p> <p>4a. Help and assistance are available from the Sustainability Advisory Team (see</p>

	becomes known	footnote 6 below).
Stage 6: IMPLEMENT PROJECT AND ACCEPT FOR OCCUPATION		
Implement Project / Accept / In-Service period	<ol style="list-style-type: none"> 1. Project/construction undertaken sustainably 2. Good quality SD data captured and reported 3. Regular reviews are undertaken to look at opportunities for improvement. Improvement opportunities are carried out. 4. Monitoring and mitigation of Sustainable Development Management Plan implemented. 5. Review/prepare for Termination. 	<ol style="list-style-type: none"> 1a. Undertake DREAM – construction stage. 2a. The contract will contain SD reporting requirements/KPIs against which specific data will be required to be submitted at regular points. 3a. Implement additional requirements as identified above including ensuring EMS is running properly. 4a. Ensure compliance with all legislative and policy requirements. 5a. Ensure previous plans and options are referred to.
Stage 7: MANAGE COMPLIANCE PERIOD, MANAGE IN-SERVICE / THROUGH LIFE, CLOSE CONTRACT AND DISPOSAL		
Early stages	<ol style="list-style-type: none"> 1. Completed project is meeting all SD requirements in operation. 	<ol style="list-style-type: none"> 1a. Undertake DREAM – operation stage
In-service	<ol style="list-style-type: none"> 2. Performance is robustly monitored and reported. Continual improvement is normal business. 	<ol style="list-style-type: none"> 2a. Ensure SD Management Plan and EMS are being followed/operated effectively. 2b. Good quality data captured and analysed.
Termination / End of Contract / Disposal	<ol style="list-style-type: none"> 3. Disposal or transfer of assets fully considered. Disposal monitored carefully. 	<ol style="list-style-type: none"> 3a. Where disposing of assets ensure the following hierarchy is enacted: <ul style="list-style-type: none"> • Reduce amount of waste produced; • Reuse as much waste as possible; • Recycle what cannot be used; • Recover value from that which cannot be recycled; and • Responsibly dispose of any residual waste.

Figure 5.2 – Projects Step-by-Step

This section is supported by the question suite at Appendix A which sets out some of the key questions to be addressed at each project phase.

Maintenance / Core Services / Minor New Works

- This guidance, while structured in line with projects/core works, is equally applicable to maintenance/core services activity.
- Wherever possible, minor new works, core services and other maintenance contracts/specifications should require that:
 - Energy and water efficiency actions are a normal part of business;
 - Routine replacement utilises sustainable solutions including Quick Wins products e.g. bulbs are replaced with energy saving bulbs, taps are replaced with aerated taps, cisterns replaced with low flush versions, boilers replaced with latest energy efficient models. Output specifications that simply say keep lights or taps functioning are no longer acceptable;
 - The use of hazardous materials is kept to an absolute minimum; and,
 - Waste is minimised and recycled to the maximum possible extent.

Note: Guidance in relation to maintenance/core services will be further expanded in future versions of this guide.

Section 6: Sustainable Construction & Refurbishment – A High Level Guide

6.1 At the project stages involving analysis and choice of options and development of the design it is essential that Sustainable Development (SD) is a key deciding factor.

6.2 MOD's high level objectives for sustainable construction projects are:

- To have buildings that are user friendly places where people want to work;
- To ensure that buildings will continue to retain these attributes through their operational life. This means that factors like climate change temperature modelling will need to be considered during design;
- To use the project procurement lifecycle as a framework to deliver a sustainable solution, which satisfies the social, economic and environmental aspects of sustainable development;
- For all projects, utilise appraisal tools appropriate to the size, nature and impact of the project;
- For all new construction and refurbishment projects to achieve an "Excellent" DREAM rating (or BREEAM or CEEQUAL);
- Incorporate a full range of sustainable development considerations into all new build and major refurbishment construction projects. These projects will incorporate the targets and principles laid out within the Government's *Common Minimum Standards for the Procurement of Built Environments*, and follow the guidance laid out in the OGC *Achieving Excellence in Construction Guide 11: Sustainability*; and
- To ensure that all new construction and major refurbishments contribute towards energy, water and waste efficiency targets – currently Government Sustainable Operations targets.

6.3 Below are some specific issues that should be considered in relation to construction and refurbishment – DE Project Managers, customers and suppliers should ensure that designs and specifications include these aspects (This section is supported by the detail in Appendix B):

6.4 For a development to be sustainable it must consider the three interconnecting issues of environment, society and economy.

Accordingly, the philosophy of the sustainable design approach is to:

- Respect the environment;
- Maintain the health and well-being of the building users; and
- Provide overall value for money in whole-life costing terms.

A design idea that satisfies only two out of the three aspects of sustainability cannot be sustainable. Design Quality Indicators (DQIs) such as Design Excellence Evaluation Process (DEEP) can assist.

6.5 As part of our estates management strategy, make explicit the decision-making process to be applied when deciding whether to proceed with new build or to reuse an existing building, with a presumption in favour of reuse where practicable and cost effective.

6.6 Design: A good sustainable building project will have the right mix of environmental performance, user comfort and efficient construction. Projects should engage with design firms that have demonstrated a good track record in sustainable design. Construction design for both new build and refurbishments should consider:

- Site choice aspects e.g. brownfield rather than greenfield;
- Flexibility, adaptability and future expansion (e.g. loose-fit design);
- Best practice in efficient construction;
- Climate Change Adaptation;
- Materials e.g. non-polluting, recycled, minimal waste;
- Landscape e.g. vehicular circulation, overall landscaping proposals or views out - these influence building position, window design, landscaping and parking;
- Energy and water efficiency – (Note: all new buildings will require an Energy Performance Certificate from April 2008);
- User comfort;
 - Visual comfort e.g. use of natural light;
 - Thermal comfort e.g. dealing with solar and internal heat gains, thermal mass;
 - Indoor air quality e.g. use of natural ventilation;
 - Acoustic comfort e.g. minimising noise disturbance; and
 - Adaptive opportunity and control e.g. allowing occupants to improve their own comfort
- Waste and recycling; and,
- DREAM and environmental appraisal

The key areas are addressed in more detail below:

6.6.1 Flexibility and adaptability: All new building designs must address possible future changes of use, in the design of the structure, interiors and fabric, and extensions that might reasonably be predicted. In each case, the degree to which this is undertaken will need to be agreed at the design stage with the customer. These considerations should not adversely effect the proposed user's current requirements. Flexibility means enabling different activities to be accommodated in given spaces without physical rearrangement taking place. Adaptability means the design of the building allows physical rearrangement of various building elements, services and furniture.

6.6.2 Efficient Construction: The construction industry is doing much work at present on the efficient construction agenda. Many of its efficiency aims are in line with Sustainable Development objectives – although there is potential danger for counter-productive elements as well – and estate project teams and their suppliers must seek to align with emerging best practice.

6.6.3 Climate Change Adaptation: MOD must adopt a revised approach towards design for both new builds and refurbishments. Buildings need to be adapted for future climate change, including higher average temperatures, heavier winter rainfall, decreased summer rainfall, sea level rise, and the increased risk of flooding. Buildings must be designed to maintain user comfort throughout their life. In general many buildings will need to be “heavier” and/or made of higher specification materials. The use of thermal mass in the fabric for the floors, walls etc. and ‘night venting’ (to cool the thermal mass), can help reduce internal temperatures.

6.6.4 Selection of materials: Energy input required to extract, modify and deliver a building material is known as the 'embodied energy'. Every effort should be made to select appropriate materials with the lowest embodied energy. Timber should only be specified where there is an assurance from the suppliers that all timber is legally felled and traded from forests which are being managed sustainably and has a declared environmental policy, such as from a Forest Stewardship Council (FSC) approved scheme. Every effort should be made to minimize the use of building components made of composite elements that are difficult to separate and sort in the future for material recovery when the building is decommissioned. Building materials that are known to be hazardous to health should be avoided. Many of these aspects are covered by our tool suite including DREAM.

6.6.5 Landscaping, layout and biodiversity: Ecologically based landscape design using appropriate plant species should be used to improve local air quality improve biodiversity potential and increase user satisfaction. Local traffic issues and vehicular circulation should be properly considered e.g. a balance must be struck between providing parking and encouraging use of public or other forms of transport.

6.6.6 Energy and Water Efficiency:

- Energy and energy management: Good maintenance and energy management procedures are essential if low energy design features are to achieve their potential. By the appropriate use of controls such as zoning, optimising boiler start times and weather compensation, the heating system can be streamlined to deliver heat only where and when it is required. Mechanical air conditioning should only be considered as a last resort and should never compete with heating systems. To limit the unnecessary use of electric lighting, photocell sensors should be used to control internal and external lighting so that it can be switched off automatically when there is sufficient natural light or when a space is frequently unoccupied such as WCs. A Building Management System (BMS) should be available to the Facilities Management team to enable plant to be controlled efficiently with energy consumption subject to monitoring and targeting (M&T). Utility meters (including electricity, gas, oil, lpg, water and heat) should be installed and automatically read on an half hour basis to enable effective energy management action. Sub metering should be used to allow independent monitoring of special areas such as kitchen services, computer server rooms etc.
- Water economy: It is unlikely that the required reductions in water use cannot be met using water-efficient approaches (such as low-flush toilets) and education alone: there is a need to include additional water-saving technologies such as grey water recycling (or to retrofit such technologies to existing buildings) to meet targets for Sustainable Development. Even though measures such as these will not always pay for themselves over time, and therefore have not been included in many past projects, they are now seen to be essential if targets are to be met. Additional funding will be required to achieve some targets. Value for money comes through the benefit of achieving those targets.
- The design should consider the following energy efficiency measures/features:
 - Effective control of heating, ventilation and a/c;
 - Measurement of consumption;
 - High levels of insulation;
 - Use of natural lighting; and
 - Energy saving appliances.
 - Incorporating on-site renewable energy – new builds should aim for 15-20% with a minimum of 10%.

- Water efficiency:
- Water efficiency measures/features;
- Grey water harvesting; and
- Water saving appliances.

6.6.7 User comfort: The visual, thermal, air quality and acoustic comfort of users should be at the forefront of any design. Users should also have the ability to improve their own comfort.

6.6.8 Lighting and solar design: Building occupants always place a premium on natural light and a view to the exterior. Carefully admitted and controlled daylight enhances the visual quality of interior spaces, and offers many psychological benefits. Natural light has inherent variability and unique spectral qualities that reveal and highlight interiors. Providing naturally lit interiors has been shown to increase user satisfaction, lower absenteeism, and improve productivity. Daylight is also difficult and expensive to replicate with electrical lighting. Day lighting design has a major impact on the form and orientation of buildings. Projects should maximize the use of natural light but balance this with solar gain e.g. through the use of user-controlled blinds.

6.6.9 Ventilation, heating and cooling: The goal of good ventilation design is to provide good indoor air quality without draughts or stagnant areas, and with minimum energy use. These objectives can generally be satisfied by means of natural ventilation, and should avoid complicated active building service systems. Ventilation control will generally be by means of opening windows, although double height spaces may require motorised high level vents. See Energy and Climate Change above.

6.6.10 Recycling facilities and waste disposal: Recycling saves both energy and raw materials. Not only should the recycling of building materials be encouraged during construction (see below) but also during the operation of the building. Recycling facilities should be provided to allow separate types of waste, such as paper, bottles and aluminium cans, to be sorted into different containers. The refuse area allocation will therefore be slightly larger than would otherwise be the case to allow these materials to be kept separate.

6.6.11 Minimizing waste during construction: The construction industry is responsible for producing over 90 million tonnes of building and demolition waste each year, a quarter of the total waste produced in the UK. Around 15% of this is unused construction materials. Such large volumes of waste squanders money and increases the burden on landfill sites. Contractors should be specifically instructed to be aware of the need to reduce wastage, re-use discarded materials and recycle materials wherever it is feasible. The objective should be to minimize the amount of waste, especially that which is sent to landfill. Using more recycled material in construction is a good way of making a contribution to sustainable development by diverting materials from landfill and limiting the depletion of finite resources. Requiring minimum levels of recycled content in projects is commercially sensible, good for the environment and achievable at no extra cost.

6.6.12 Some measures that can be applied to reduce construction waste are:

- Design the building to use standard materials and standard sizes as much as possible;
- Store and handle construction materials safely and correctly on site;
- Keep packaging on deliveries as long as possible to protect them from damage;
- Ask for minimal feasible packaging;
- Investigate whether packaging can be sent back to suppliers for reuse or recycling; and

- Re-use shuttering, boarding and fencing where possible;
- Consider recycled construction materials (for example 40% of all steel produced in the UK is from recycled material)
- Seek to set minimum recycled material content in the project or elements of the project.
- Use of “Just-in-Time” delivery and modular/off-site build
- Advice can be sought from Waste & Resources Action Programme (WRAP) who work with Departments on use of materials, recycling and waste reduction.

6.6.13 Environmental assessment for construction i.e. BREEAM, DREAM CEEQUAL. It is MOD policy to complete environmental assessment and sustainability appraisals for all new projects. The Defence Related Environmental Assessment Methodology (DREAM) has been developed to meet this policy commitment and Government targets for construction projects. Use of DREAM is now a mandatory requirement for all major projects, core works and refurbishments. All new builds and major refurbishments must achieve a DREAM “excellent” rating. See Section 4 for fuller discussion or go the DREAM website.

6.6.14 Appraisals: There is a range of EC and UK legislation driving the requirement for Sustainability and Environmental Appraisal, and as a major Government department, MOD must comply. All programmes and projects must carry out appraisals following the Sustainability and Environmental Appraisal Tools Handbook Methodology. This will identify areas for further investigation, appraisals or assessment relevant to the programme or project in question. Potential significant environmental impacts identified by appraisals can be further considered during the DREAM process. The appraisal may also identify the requirement for application of the Design Excellence Evaluation Process (DEEP) tool. Appraisal work should commence from the inception of the project.

6.6.15 Social Aspects: Appraisals should address social aspects of estate work. Key issues include:

- Minimising noise and disturbance both during construction and during subsequent operation
- Adopting a professional best practice approach to keeping sites tidy, clean and safe
- Facilities that can be included for staff and for the local community
- Ensuring full sight of the supply chain and that policy is being followed by all
- All Health and Safety requirements are fully observed and assured

6.6.16 Costs and funding issues relating to Sustainable Construction. There is further information and examples relating to cost issues at Appendix C.

6.7 An Example of Good Practice

ON-SITE ENERGY AT LYDD TRAINING CAMP

In January 2007 a successful project was completed at Lydd Training Camp in SE Kent. Free energy, heating and water is provided for a stand-alone remote building used by the Range Wardens and troops whilst on training exercises.

The renewable energy system has replaced an old diesel generator which not only polluted the



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local Site of Special Scientific Interest (SSSI) but was also expensive to operate. The electrical energy is now supplied from 2 small wind turbines and a solar panel. Hot water is supplied from an integral storage vessel heated by a solar hot water 'collector' and a wood burning stove which also provides space heating. Water is no longer delivered daily by truck as it is now 'harvested'. Rain water is collected from the roof into a designated storage tank where it is filtered then pumped to more filters, including a UV filter before use. Energy efficient appliances such as a kettle, microwave, lighting and fridge were provided and are in daily use.

It is predicted that the project will reduce the harmful greenhouse gas Carbon Dioxide by about 5 Tonnes per year (the average house emits about the same) whilst reducing the operating and maintenance costs.

Appendix A: What are the basic questions that need to be asked at each stage of an estate project?

At all project stages the key questions that project teams, customers and suppliers should ask themselves are:

A.1 SD knowledge and skills at the commencement of the project

- Do all those involved have a clear understanding of Sustainable Development (SD) and what it is seeking to achieve?
- Do all involved understand MOD SD policy, including minimum mandatory requirements?
- Are all involved familiar with the Government and MOD SD targets that need to be met by my project?
- Is training or research required?
- Is specialist help going to be required?
- Has a senior lead for sustainability issues been identified?

A.2 Preparation of Statement of Need and/or User Requirement Document (URD)

- Do those involved understand the likely SD impacts and potential of my project?
- What SD objectives is the project best suited to deliver?
- Does the URD explicitly seek the delivery of a sustainable solution?

A.3 Preparation of Rough Order of Estate Information (ROEI)

- Does the costing include minimum SD policy requirements/standards?
- Has a whole life costing approach been adopted showing the through life savings of sustainability elements?
- Does the estimate allow for sufficient incorporation of SD elements to make this project best practice?
- Have appropriate preliminary sustainability appraisals been undertaken?

A.4 Assessment Phase (Assessment Brief/Study)

- What detailed design issues should be under consideration?
- How will the project incorporate:
 - Energy efficiency measures/features;
 - Renewable energy (has an options study been carried out?);
 - Water efficiency; and,
 - Biodiversity protection and enhancement.
- Has a detailed Sustainability Appraisal been undertaken?
- Is there evidence it has been used to influence the choices being considered?
- Are there significant implications for job numbers/employment? If so, a Regional Socio Economic Report (RSER) will be required at this stage (e.g. must be undertaken for any move involving 25 or more staff).
- Have design solutions been considered that provide sustainable outcomes?
- Has appropriate specialist advice been sought? This is essential.
- Has the project achieved a DREAM “Excellent” rating at the survey stage?

A.5 Arrive at preferred option

- Has the choice been appropriately influenced by sustainable development considerations?
- Has a statutory Environmental Impact Assessment (EIA) or non-statutory Environmental Appraisal been initiated?
- Has sufficient time been allowed for the EIA/AA and Planning process? It can take 6-8 months to carry out an EIA for a non-controversial project.
- Has delivering sustainable outcomes (e.g. energy, waste and water efficiency, long term user comfort, optimal for the local community) been made a key part of the project?

A.6 Secure Business Case Approval (inc. Main gate prior to securing contract commitment)

- Does the business case clearly provide sustainable options? It must do.
- Are all estimates based on a whole-life costing (40 years where no other specific number is appropriate to the project)? This ensures that any additional upfront costs for sustainable elements, e.g. renewable energy, are weighed against through life savings.
- When assessing options, writing business cases or making procurement decisions is weight being given to the social, environmental and economic elements of the different options?
- When making decisions will appropriate consideration be given to the project's contribution to the future social, environmental and economic well-being of society as a key component of the project's value for money?
- Where affordability may prevent a sustainable option being chosen has the issue been raised to senior management?
- Is a clear audit trail being kept of any decision where the sustainable option is not chosen?

A.7 Develop Preferred Option

- Does the preferred option meet all minimum mandatory sustainable development policy requirements?
- How will the preferred option deliver against Sustainable Development targets?
- Has the project achieved a DREAM "Excellent" rating at the design stage? If not, why not? Can anything be done?
- Will this project be a case study for best practice sustainable estate procurement?

A.8 Issue appropriate Brief / Tender Documents / Evaluate returns

- Does my tender documentation contain an appropriate SD question suite?
- Does my potential supplier/s have a good track record in delivering against SD objectives?
- Does my potential supplier/s operate a good quality Environmental Management System?
- Where appropriate, is there joint working with my potential suppliers to innovate and come up with more sustainable ways of undertaking the project?
- Is there reasonable sight of the supply chain and certainty that the whole supply chain will act responsibly?
- When assessing any bids is weight being given to the social, environmental and economic elements – especially where they offer through life benefits?

A.9 Secure Contract commitment

- Before contract commitment/work authorisation has the design been considered/approved by appropriate SD Subject Matter Experts (e.g. in ES&P or EST), including external experts where appropriate?

- Is there close involvement by key stakeholders in the design stage to ensure the right SD outcomes?
- Does the contract contain specific SD deliverables? Including against SD targets?
- Does the contract set out a clear performance measurement regime that includes the SD aspects?
- Can the project team state that no SD elements have been removed as part of final negotiations? Or where they have, senior management have been advised and an audit trail kept of the decisions.

A.10 Implement Project / Accept / In-Service Period

- Will construction be monitored to ensure best practice efficient construction standards?
- Has the project achieved a DREAM “Excellent” rating at the construction stage?
- Does the supplier have in place the required SD mechanisms, plans and documents?
- What can be done to encourage my suppliers to do more to achieve SD objectives?
- Are mechanisms in place to provide the necessary information to ascertain SD delivery and achievement against SD targets?
- Does the finished product meet user requirements? Is the user pleased with the outcome?
- Has the project achieved a DREAM “Excellent” rating at the operating stage?

A.11 Termination / End of Contract / Disposal

- Are all materials being disposed of as sustainably as possible?
- Have any negative sustainability impacts (including local community impacts) been dealt with as well as possible?

A.12 Additional questions in relation to materials/products:

- Are materials being specified/chosen that are the most sustainable available?
- Can a minimum percentage be set for the amount of recycled material to be used in the project?
- Is there certainty that materials used by the supplier meet legal and mandatory policy requirements e.g. all timber must be from legal and sustainable sources?
- Will any products required as part of the project meet Minimum Environmental Standard e.g. electrical products, boilers, paints, textiles? (See Quick Wins 2007)
- Are there any innovative materials available that might meet the needs of the project?

A.13 Additional questions in relation to design considerations?

- Will the design deliver energy, water and waste efficiency and, where appropriate, protect and promote biodiversity?
- What is the design life of the building? Is it adapted to future climate change to allow continuing user comfort?
- Will the design meet user requirements and provide environmental comfort?

- Will the building/development be somewhere that people want to work or live?
- Does the design meet minimum mandatory requirements including:
 - Building Regulations (especially Part L)
 - Policy requirements of the Planning System
 - DREAM “Excellent”
 - Common Minimum Standards for Construction
 - Code for Sustainable Homes (if a development of dwellings)

Appendix B: Sustainable Development Checklist for Contracts

Many of the following can be developed into specific contract specifications as appropriate. Additionally a full list of green specifications is available at: <http://www.greenspec.co.uk/>

B.1 Travel

- Seek the development of a green transport plan
- Seek to reduce road transport vehicle CO₂ emissions through a combination of:
 - Procuring/using vehicles that achieve an average of 130g/KM CO₂ emissions (there is a target for Government fleets to achieve this by 2010/11 at the latest.)
 - Procuring/using vehicles that are alternatively fuelled.
 - Seek to reducing business vehicle mileage
 - Improving fuel efficiency of vehicles
 - Reducing total fuel consumed
 - Reducing single occupancy car commuting
 - Reduce number of deliveries to construction sites e.g. by recycling more on site waste materials
 - Reduce number of waste trips from construction sites (links to waste below)
- Designing the site layout to carefully deal with traffic is essential, and to allow for appropriate road access without causing traffic nuisance and safety hazards. Encouraging cycling is important.
- Where possible specify the sourcing of local materials, to reduce the travel distance footprint

B.2 Water

- Ensure water consumption is monitored
- Reduction of water consumption must be a key aim
- Set specific water performance requirements (e.g. max 105 litres of water per person per day for houses, max 19 litres per person per day in offices)
- Identify and action opportunities for water savings:
 - 6/4 Dual Flush WC;
 - Flow Reducing/Aerating taps throughout;
 - 6-9 litres per minute shower (note that an average electric shower is about 6/7 litres per minute);
 - a smaller, shaped bath – still long enough to lie down in, but less water required to fill it to a level consistent with personal comfort;
 - 18ltr maximum volume dishwasher;
 - 60ltr maximum volume washing machine;
 - Movement sensors or pressure sensing;
 - Infra-red operated spray taps.
- Grey water recycling systems, whereby, recovered rainwater is used for flushing toilets, irrigation and possibly cleaner's sinks (and for many other potential uses on MOD's non-office estate)
- Where possible grey water collection should be standard on any development greater than 500m².
- Surface water management - Set targets for proportions of permeable hard-standing and parking surfaces to reduce rainwater run-off and include provision of soakaways and areas of porous paving

B.3 Waste

- Require a robust waste management strategy including a strict plan during construction and sufficient space for waste storage during operation
- Ensure ongoing monitoring of sites for impacts of waste
- Measure the amount of waste arising from a site
- Consider re-use, recycling/composting, incineration (including obtaining heat & power from the waste), landfill, special and hazardous wastes
- Projects should seek continuous reduction in total waste arisings. All contracts should include clauses to minimise and where possible, avoid impacts of waste
- Specify targets for the recycling of up to 90% of construction waste
- Specify modern construction techniques that minimise waste

B.4 Energy (see also Construction)

- Energy efficiency must be a key aim of all projects – a start point should always be to minimise the need for energy e.g. through the use of natural light
- Specific energy performance measures should be used
- Reduction of absolute carbon, from fuel and electricity used in buildings on the estate
- Incorporate on-site energy production from renewable sources (likely to become a nationally applicable planning requirement)
- Overall we should seek to source at least 10% of electricity from renewable sources.
- Individual new developments should seek to include a minimum of 15% on-site renewable energy (unless a better alternative can be proposed)
- We should also seek to source at least 15% of electricity from Good Quality CHP.
- Contracts should include measures to ensure opportunities are identified and measures taken for reducing carbon emissions
- A specialist renewable energy study should be undertaken on all major developments to ascertain the most cost-effective solutions for the site. Options can include:
 - Buildings designed and positioned to capture solar heat
 - Geothermal boreholes used to both heat and cool
 - Combined heat and power systems
 - Biomass boilers for heating, where an appropriate fuel source is available.
 - Solar energy thermal panels and photovoltaic panels
- Ensure that all electrical appliances installed are low energy (See Quick Wins)
- All new office buildings will require an Energy Performance Certificate from April 2008.

B.5 Construction (see also Energy and Climate Change)

- Brownfield sites, especially those previously contaminated, should be the first port of call in considering locations for new builds, subject to any historic or wildlife features (e.g. presence of protected species)
- MOD should incorporate a full range of sustainable development considerations into all new build and major refurbishment construction work
- Projects should incorporate the targets and principles laid out within the Governments 'Common Minimum Standards for the Procurement of Built Environments' and follow the guidance laid out in OGC 'Achieving Excellence Guide 11: Sustainability'
- Specification, where possible, to set carbon emissions to below the levels required by current standards, legislation or regulation.
- Estate project sponsors and teams should seek to pioneer the construction of low carbon buildings
- MOD will soon be required to construct carbon neutral buildings (e.g. new houses from 2016)

- Design heating systems to re-use the heat generated by the IT network systems and other heat sources
- Use design and technology to cut the need to use air-conditioning
- Design natural cooling and ventilation systems (and heat storage) e.g. through ventilated concrete ceiling slabs
- To use passive ventilation systems, including wind cowls.
- To set insulation standards in design to retain heat (and to keep cool)
- To design the use of earth and vegetation insulation (e.g. green roofs). Build some structures underground to maximise natural earth insulation
- Specify modern construction techniques that minimise waste
- Specify the use of recycled construction materials, especially those that are already on-site, for example, the use of crushed concrete from the former buildings in the foundations or structure of the new building
- Specify performance levels for the use of recycled materials on projects. Specify the use of recycled insulation, recycled bricks, products from recycled glass and other recycled construction materials

B.6 Adaptation to Climate Change

- Projects should assess the risks and potential opportunities posed by climate change and variable weather, including higher average temperatures, heavier winter rainfall, decreased summer rainfall, sea level rise, and the increased risk of flooding
- New builds should be designed to maintain user comfort throughout its life – this means dealing with considerably higher temperatures. For example, the use of thermal mass in the fabric for the floors, walls etc. and ‘night venting’ (to cool the thermal mass), can help reduce internal temperatures
- Projects should identify opportunities to site new developments in areas that are less vulnerable to climate change impacts, and/or build resilience to climate change into new developments and major refurbishment projects
- Runways that become unstable as tarmac softens and buildings that cannot withstand the pressures of high winds or high temperatures will require revised specifications. Materials used may need to be of a higher specification to maintain performance or increase durability

B.7 Refrigerants, ozone depleting substances and those with high GWP

- All estate contracts contain a condition which prevents the Contractor using any ozone-depleting products or substances referred to in the Montreal Protocol. The contractor is required to sign up to a nil return on this subject at ITT stage
- Departments, in consultation with specialists where necessary, will incorporate action plans for their estate for the systematic replacement or modification of fixed refrigeration, air conditioning and fire protection equipment containing ozone-depleting substances and those with a high global warming potential. As a minimum, action plans should ensure that they reflect current Government policy
- Projects will put procedures in place to ensure that HFCs and other greenhouse gases with a high GWP are not used where safe, cost effective and technically feasible alternatives can be used
- Projects will justify publicly any decision to use HFCs in a new build, major refurbishment, or chiller replacement scheme

B.8 Historic Environment

- MOD has formally adopted DCMS's *Protocol for the Care of the Historic Government Estate*.

- Where responsibility for management of historic property is transferred to the private sector, for example through PPP/PFI arrangement, the *Protocol* standards must be incorporated into the contractual arrangements
- MOD is pursuing plans for reducing, by means other than disposal, the number of 'Buildings at Risk' on their estate, as reported in the English Heritage Biennial Conservation Reports – The Government Historic Estate
- MOD has in place arrangements for complete coverage of Quadrennial Inspection surveys for Listed Buildings, in accordance with the *Protocol*
- Contracts and projects must have in place arrangements for protecting, maintaining and enhancing archaeological heritage sites for which they are responsible

B.9 Disposal

- Where possible aim for the prompt disposal of surplus land, buildings and other premises, to achieve overall value for money for the taxpayer and in line with other Government policies and documents regarding the disposal of assets
- Projects must ensure that where the disposal affects property of particular value (e.g. in terms of wildlife, public access, cultural heritage, archaeology, or landscape) arrangements are made to secure its sensitive management during and after disposal
- As a minimum projects should satisfy themselves that a prospective purchaser has the capability and resources to manage the property appropriately and that their plans for its use would not be significantly detrimental to its value (as defined above). This may require a risk assessment in proportion to the size and type of asset (of what could happen to the assets following disposal)
- Appropriate requirements should be made to contractual condition of transfer to any third party (especially relating to contaminated land liability)

B.10 Contaminated Land

- All projects will consider the condition of the land upon which it will impact.
- Ensure that measures are in place to prevent land contamination

B.11 Biodiversity

- Significant biodiversity impacts should be identified as part of EMS
- Audits will be conducted to identify nationally and locally important habitats and species and if necessary site based surveys to assess the impact of activities on biodiversity at each site
- Contracts must include clauses to minimise and avoid impacts and take measures to enhance biodiversity, especially in relation to UK and EU-protected habitats
- All timber should be from verified legal and sustainable sources
- Set performance targets for biodiversity. Examples include specific requirements for planting of shrubs and trees, provision of bat-boxes, creation of bird habitats, the use of green roofs and the scheduling of construction to avoid nesting periods
- Ensure that local ecological interests, including habitats, are not just protected but existing ones enhanced and new ones created

B.12 Social / Economic

- Projects must identify, assess and monitor significant social impacts that arise through procurement activities in relation to management of land, buildings and operations
- Account must be taken of potential impacts on staff and local communities
- MOD must consider factors like the welfare of workers throughout the supply chain, and work with commercial partners to ensure that supply chain integrity is achieved, to avoid reputational risks to the MOD.

- Specify contract to exceed requirements to ensure that schemes are accessible to disabled people
- Ensure that the jobs that are created by the new development are consistent with the employment needs and skills base of the residents of the local area
- Use local labour contracts and training pacts
- Include advice from the Police's Architectural Liaison team to 'design out' crime
- The visual appearance of a new development should fit in with the local area
- Include the requirement that the contractor must be a member of the Considerate Contractor's Scheme
- Facilities that can be included for staff and for the local community
- All Health and Safety requirements are fully observed and assured

Appendix C: The Cost of Sustainable Development

C.1 Sustainable Construction – cost issues

If sustainable development factors are considered early enough in the project/design process many sustainable design and specification aspects may entail no or little additional cost. Many other aspects can have a reasonable 'payback period'. Others will require additional capital expenditure. What is crucial is that each building should be designed and considered as a whole, and individual elements not isolated out. While individually some elements may cost more, they can give both capital and running cost savings elsewhere and deliver sustainable development outputs which are intrinsically valuable.

- Where an office block is designed to maximise natural ventilation and reduce solar gain, this can reduce engineering capital and running costs. To achieve this, factors such as the building orientation, building widths, building mass, fenestration design and solar shading will need to be considered, to establish the optimum design for a particular building.
- As part of an overall design approach the use of thermal mass in the fabric for the floors, walls etc. and 'night venting' (to cool the thermal mass), can help reduce internal temperatures and consequently reduce engineering capital and running costs.
- The use of appropriate light sensors that switch off lights when not required, inclusion of sun-pipes and roof lights and/or increased insulation levels, while costing a little more in capital costs can have reasonable payback periods. However the number and type of light sensors used, or optimum 'U value' etc. will need to be assessed for each building.
- Making sure that products procured, e.g. paint or chemicals used for maintenance, is the most environmentally friendly. Often there will be no cost difference.
- Early decisions on the percentage use of open plan offices can help reduce both capital and running costs if the building is designed to maximise the advantages of this approach.
- There are grant programmes which, although subject to strict criteria, are available to public organisations including MOD. These include:
 - DTI's Low Carbon Buildings Programme which covers grants for the installation of microgeneration technologies and is available for public sector buildings.
 - Salix is a company funded by the Carbon Trust to address the issue of organisations being unable to find investment money. They provide a capital pot that is dipped into on a matched funding basis and the savings generated from the project on the utility bill ploughed back into the pot for future projects. (*Note: The applicability of this scheme to MOD is still being reviewed along with the alignment with current financial procedures.*)
 - Additionally, MOD has set up its own process for identifying in-year funding for energy efficiency projects (contact DE ES&P IS for information)
- **Affordability** - Overall design decisions must be made on the basis of through life costs and the sustainable development "value" of the building – not simply on upfront affordability. It is also not generally acceptable to save money in construction at the expense of increased through life costs. Estate projects are required to include SD elements as normal and essential business and not as optional extras which can be removed when funding is short.

C.2 Research and examples:

Sustainable buildings may have greater capital costs but can have lower running costs (taken from National Audit Office Report: Building for the future: Sustainable construction and refurbishment on the government estate – April 2007)

Research suggests that the capital costs of building sustainably may be greater, but not significantly so. Analysis conducted by the Building Research Establishment and Cyril Sweett in 2005 aimed to challenge the assumption that more sustainable design and construction incurs substantial additional costs. By identifying the costs associated with achieving different BREEAM ratings for a variety of building types, they showed that significant improvements can be achieved for relatively little additional expense (see table below). Some examples of the costs associated with measures to incorporate sustainability and improve the sustainability of an air-conditioned office building are shown in the diagram below.

While the BRE/Cyril Sweett findings might seem to reinforce the perception that building sustainably costs more, it is important to bear in mind that the operational costs of a building are typically many times the cost of building it. Although the BRE/Cyril Sweett study did not evaluate in detail the whole life costs and benefits of building to higher environmental standards, it highlighted the fact that sustainable building options would result in significant reductions in the costs of water and energy.

Additional capital costs associated with achieving different BREEAM ratings			
Type of building	Additional capital cost to achieve BREEAM ratings of:		
	Good %	Very Good %	Excellent %
Naturally ventilated office	0.3 – 0.4 (saving)	2.0	2.5 – 3.4
Air-conditioned office	0 – 0.2	0.1 – 5.7	3.3 – 7.0
PFI procured health centre	-	0	0.6 – 1.9
House	0.3 – 0.9	1.3 – 3.1	4.2 – 6.9
Source: Building Research Establishment/Cyril Sweett			
Costs associated with achieving BREEAM 'Good' for the PFI procured health centre were not evaluated.			

Example – Refurbishment of MOT vehicle testing stations by the Vehicle and Operator Services Agency

Natural ventilation – Passive stack ventilation (using chimneys) can be used for natural ventilation cooling rather than mechanical ventilation systems. VOSA estimated that, at the Leeds testing station, a traditional air-conditioning system for the front office would cost £5,000 to install and £450 per year to run, whereas a natural ventilation system would cost £6,000 with zero running costs. Natural ventilation would therefore recoup the additional capital cost in about two years, and also reduce carbon emissions by 2.5 tonnes per annum.

Natural daylight – The test stations currently use side windows and electric lighting, but lighting levels

are poor. Including sky-lights, which have a minimal capital cost, increases average daylight levels considerably and allows more efficient use of electric lighting. Together with the installation of low energy lighting systems, VOSA estimated that over 25 years this approach saves £12,000 in energy costs and reduces carbon emissions by 2.5 tonnes.

Installation of wind turbines – The feasibility of installing wind turbines at some sites was investigated where the location was suitable. The analysis of this option at the testing station in Grantham showed that:

- A unit generating approximately 13,000Kwh of electricity per annum would reduce the forecast electricity bill for the station by £1,040 per annum at current electricity prices, and a small surplus of electricity worth £430 per annum could be sold back to the grid;
- At a capital cost of £24,200 and maintenance of £250per year, the wind turbine would result in a simple payback of 18 years (though this would be reduced if electricity prices increase); and
- A reduction of 5.6 tonnes of carbon dioxide would also be achieved.

So far, VOSA plans to fit wind turbines at two stations: Grantham and Newcastle.

Note: The table on the next page offers indicative examples only and individual suggestions must be viewed in the light of wider MOD policy e.g. MOD does not necessarily advocate the use of the Considerate Contractors Scheme as other schemes are available.

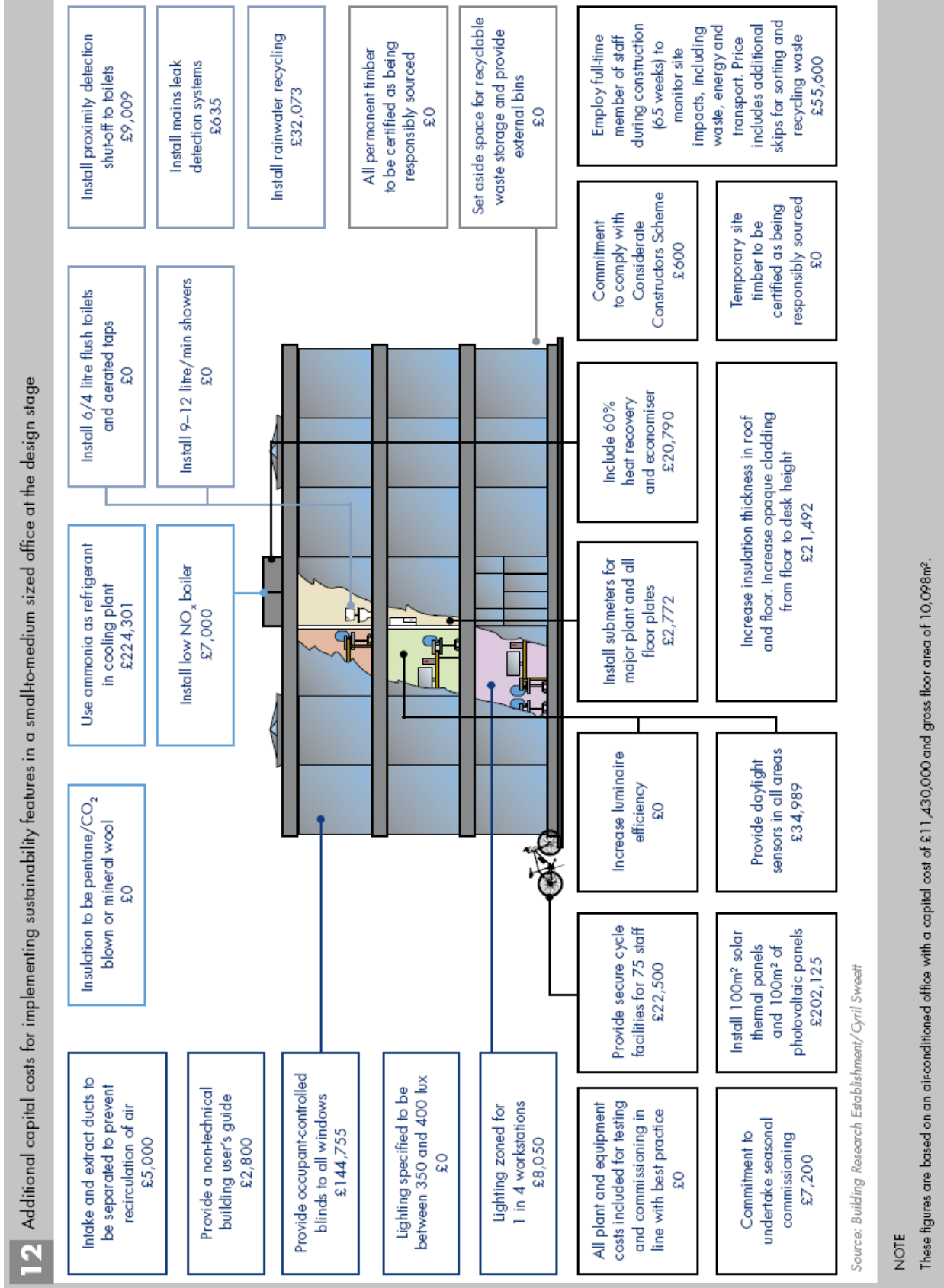


Figure C.1 – Indicative cost of SD elements

Appendix D: Sustainable Operations on the Government Estate (SOGE) Targets (June 2006) – to be included in all new contracts⁷

➤ These are the priority Sustainable Development targets for MOD. Contributing towards meeting them is mandatory policy for all projects. Specific requirements to help achieve them must be embedded in all new contracts.

PRIORITY AREA	TARGETS
CLIMATE CHANGE & ENERGY	CARBON EMISSIONS FROM OFFICES <ul style="list-style-type: none"> • Reverse the current upward trend in carbon emissions by April 2007. • Reduce carbon emissions by 12.5% by 2010-11, relative to 1999/2000 levels. • Reduce carbon emissions by 30% by 2020, relative to 1999/2000 levels.
	CARBON EMISSIONS FROM ROAD VEHICLES <ul style="list-style-type: none"> • Reduce carbon emissions from road vehicles used for Government administrative operations by 15% by 2010/11, relative to 2005/2006 levels.
	CARBON NEUTRAL <ul style="list-style-type: none"> • Central Government's office estate to be carbon neutral by 2012.
	ENERGY EFFICIENCY <ul style="list-style-type: none"> • Departments to increase their energy efficiency per m2 by 15% by 2010, relative to 1999/2000 levels. • Departments to increase their energy efficiency per m2 by 30% by 2020, relative to 1999/2000 levels.
SUSTAINABLE CONSUMPTION & PRODUCTION	WASTE ARISING <ul style="list-style-type: none"> • Departments to reduce their waste arisings by 5% by 2010, relative to 2004/2005 levels. • Departments to reduce their waste arisings by 25% by 2020, relative to 2004/2005 levels.
	RECYCLING <ul style="list-style-type: none"> • Departments to increase their recycling figures to 40% of their waste arisings by 2010. • Departments to increase their recycling figures to 75% of their waste arisings by 2020.
NATURAL RESOURCE PROTECTION	BIODIVERSITY <ul style="list-style-type: none"> • Departments to meet or exceed the aim of having 95% of Sites of Special Scientific Interest (SSSI's) in sole ownership or control in target condition by 2010.
	WATER CONSUMPTION <ul style="list-style-type: none"> • Reduce water consumption by 25% on the office and non-office estate by 2020, relative to 2004/2005 levels. • Reduce water consumption to an average of 3m3 per person/year for all new office builds or major office refurbishments.

⁷ It is now mandatory Government policy that all new commercial arrangements include requirements in relation to achieving progress against these targets. Government Sustainable Procurement Action Plan, March 2007.

GOVERNMENT TO MANDATE

- Departments to adopt The Carbon Trust's Carbon Management Programme.
- The application of BRE's Environmental Assessment Method (BREEAM) excellent standards or equivalent, to all new builds/ major refurbishments.
- Accepted elements from the Sustainable Procurement Task Force National Action Plan, (as set out above).
- OGC's Property Benchmarking Scheme – aimed at improving the efficiency and effectiveness of corporate estate management.
- Departments to work towards an accredited certified environmental management system (EMS) i.e. ISO 14001 or EMAS⁸.
- Data collection and reporting – identification of core data to be reported against the new targets.
- All Departments to encourage staff to take an active role in volunteering in the community.
- All Departments to conduct sustainability appraisals of office relocations.

Additional Sustainable Procurement elements added in March 2007

UK GOVERNMENT SUSTAINABLE PROCUREMENT ACTION PLAN

Leadership and Accountability

- Permanent Secretaries are accountable for their department's overall progress and for ensuring, from 2007-08 onwards, key staff in their departments have performance objectives and incentives that drive the implementation of this plan, linked to performance objectives for delivering efficiency savings.

Budgeting and Accounting Practice

- where responsibility for capital and revenue budgets is divided between different organisations sponsoring Departments will review budgeting arrangements and performance frameworks to ensure any barriers to choosing sustainable solutions are resolved. In addition, where Departments believe an upfront cost constraint prevents them from choosing the most sustainable option, they may raise this with the Treasury.

Building Capacity

- Departments to set out the actions they are taking to ensure procurement practice helps to achieve their sustainable operations targets in their departmental Sustainable Development Action Plans.
- Government encourages organisations to make full use of the Task Force flexible framework where it helps improve procurement practice and achieve sustainability targets while OGC are developing an new detailed procurement framework.

Raising Standards

- Departments/OGC to take action in respect of central Government contracts to meet updated and extended mandatory standards⁹.
 - existing contracts will be updated as soon as is practical;
 - new contracts will be required to meet these standards;
 - steps will be taken to remove offers that fall below these standards from framework agreements within 12 months (where permissible under existing contract terms);
 - Departments will make use of pan-Government collaborative contracts in key areas to achieve compliance.

⁸ This does not mean departments must replace their existing EMS. Departments can decide whether to implement an accredited certified EMS for their whole estate, or in selected buildings only.

- New Government contracts, where relevant, will include appropriate requirements for suppliers and sub-contractors to provide products and services that comply with agreed mandatory standards and assist in the delivery of departmental sustainable operations targets.
- From 1 April 2009 only timber and timber products originating either from independently verified legal and sustainable sources or from a licensed FLEGT partner will be demanded for use on the Government estate – appropriate documentation will be required to prove it. From 1 April 2015, only legal and sustainable timber would be demanded.
- OGC will help Departments achieve their sustainable operations targets through supporting the development of pan-Government procurement of goods and services required to meet the sustainable operations targets.

Market Engagement and Capturing Innovation

- OGC and Government departments will work together to strengthen their strategic engagement with key sectors to ensure key suppliers have plans in place to lower their carbon footprint and that of their supply-chains.

EXISTING SUSTAINABLE OPERATIONAL COMMITMENTS (to continue until completion)

- Departments to source at least 10% of electricity from renewables (31 March 2008).
- Departments to source at least 15% of electricity from Combined Heat and Power (2010).

⁹ formerly known as 'Quick-wins 03 and 06'

Appendix E: Where can I find out more information and get help?

➤ INFORMATION AND REFERENCES

- MOD [JSP 418](#): *Sustainable Development and Environment Manual* (Chapter 17).
- MOD JSP 434: *Defence Construction in the Built Environment*.
- MOD JSP 326: *Defence Lands Handbook*
- Government Sustainable Procurement Action Plan (March 2007)
- *Better Defence Buildings* (re-issued in March 2005) - http://www.defence-estates.mod.uk/publications/bdc/Better_Defence_Buildings.pdf
- Defence Estates BMS Process 2.7.6 Sustainable Procurement.
- Defence Estates: 2006: *Defence Estates Strategy 2006, In Trust and On Trust* – http://www.mod.uk/NR/rdonlyres/59DC9072-CB7F-4D78-9BDB-29B23BB5E373/0/defence_estates_strategy_2006.pdf
- Defence Related Environmental Assessment Methodology (DREAM) - <https://www.dreamassess.com/default.asp> . Policy instruction: http://www.defence-estates.mod.uk/publications/policy_instructions/2007/pi0709.pdf
- Defence Excellence Evaluation Process (DEEP) - http://www.defence-estates.mod.uk/publications/bdc/DEEP_Brochure.pdf
- *MOD Sustainable Procurement Strategic Statement* – DS&C website.
- *Transforming Government procurement* – HM Treasury (Jan 2007)
- The MOD Sustainability and Environmental Appraisal Tools Handbook: http://www.defence-estates.mod.uk/publications/corporate/Appraisal_Tool_Handbook.doc
- UK construction industry's definitive guide to 'green' building design, products, specification and construction <http://www.greenspec.co.uk/>
- *Buying Green! A Handbook on Environmental Public Procurement, Commission of European Communities Working Document, 2004, EU, Brussels.*
- CIRIA / DTI: 2001: *Sustainable Construction Procurement - A Guide to Delivering Environmentally Responsible Projects.*
- CIRIA <http://www.ciria.org.uk/index.html>
- CIRIA: 2000: *Environmental Management in Construction, Report C533.*
- The Value of Good Design, *CABE*
- Better Civic Buildings and Space, *CABE*
- Treasury Guidance Note 7: How to Achieve Design Quality in PFI projects
- Improving Standards of Design in the Procurement of Public Buildings, *CABE/OGC*
- Office of Government Commerce (OGC) Common Minimum Standards for the Procurement of Built Environments <http://www.ogc.gov.uk/index.asp?id=1004702>
- OGC buying solutions website containing the Environmental Minimum Standards or Quick Wins list. http://www.ogcbuyingsolutions.gov.uk/sustainability/products/sustainability_quickwins_home.asp ;
- Sustainable Development Commission: Sustainable Public Procurement <http://www.sd-commission.org.uk/publications.php?id=208>
- Sustainable procurement in central government, Report by the National Audit Office, September 2005, available from http://www.nao.org.uk/publications/nao_reports/05-06/sustainable_procurement.pdf;

- *Sustainable Procurement National Action Plan: Procuring the Future*, Sustainable Procurement Task Force, June 2006. <http://www.sustainable-development.gov.uk/government/task-forces/procurement/index.htm>
- The suite of OGC Achieving Excellence in Procurement guidance (A manager's Checklist, Construction Projects Pocketbook and AE:1-11)¹⁰. Achieving Excellence in Construction Guidance (<http://www.ogc.gov.uk/index.asp?docid=1004611>). Two documents of particular relevance and which provide general guidance for use with all government construction projects are;
 - Achieving Excellence Guide No.1 - Initiative into Action
 - Achieving Excellence Guide No.11 - Sustainability. <http://www.ogc.gov.uk/index.asp?docid=1004611>
- The Defence Scientific Advisory Council (DSAC). Find out more about Defence and Climate Change. <http://www.dsac.mod.uk>
- DTI's Low Carbon Buildings Programme. Phase 2 is managed by BRE on 08704 23 23 13 or email info@lcbpphase2.org.uk. <http://www.lowcarbonbuildings.org.uk/home/>
- Salix (company funded by the Carbon Trust): <http://www.salixfinance.co.uk/overview.html>.

CONTACTS

Internal

- Defence Estates Estate Strategy & Policy Directorate, Sustainable Development, Bath, 01225 885121.
- Defence Estates Environmental Support Team, Sustainability Advisory Team (EST SAT), Westdown Camp - 01980 674675
- Defence Estates Estate Strategy Construction and Built Environment Team, Sutton Coldfield - 0121 311 3705.
- Defence Estate Construction Support Team (CST), Sutton Coldfield - 0121 311 3842.
- Directorate of Safety and Claims, Main Building, London - 020 72186908
- CEstO/CESO focal points for each TLB

External

- Building Research Establishment (BRE) (construction and sustainability best practice resource) - www.bre.co.uk - 01923 664300
- CIRIA (Construction Industry Research and Information Association) - www.ciria.org.uk - 0207 222 8891
- Considerate Constructor's Scheme (a voluntary code of practice, driven by industry, to reward and recognise contractors commitments to raising site management, safety and environmental standards beyond statutory duties) - www.ccscheme.org.uk
- Local Planning Authorities (LPA) (Planning Departments) www.planningportal.gov.uk
- OGC – www.ogc.gov.uk – procurement - sustainability
- Rethinking Construction (Government construction advice and best practice) - <http://www.rethinkingconstruction.org>, incorporating
- Sustainable Development Commission
- The CABE website (<http://www.cabe.org.uk>)
- The Improvement and Development Agency for local government offers guidance on implementing sustainable procurement – visit <http://www.idea.gov.uk/procurement>

¹⁰ <http://www.ogc.gov.uk/sdtoolkit/reference/achieving/index.html>

- Waste & Resources Action Programme (WRAP) offers information on recycled content products and materials at <http://www.wrap.org.uk>
- The Energy Saving Trust provides information on energy saving for local authorities at <http://www.practicalhelp.org.uk>
- The Carbon Trust also provides support on energy saving, accessible through <http://www.actionenergy.org.uk>
- The Office of Government Commerce offers advice on public procurement rules, green Public Private Partnerships, sustainability in construction procurement and related topics – visit <http://www.ogc.gov.uk>
- The Public Private Partnerships Programme (4Ps) advises local authorities on project procurement – see <http://www.4ps.gov.uk>
- The Chartered Institute of Purchasing and Supply (CIPS), the Institute of Environmental Management and Assessment (IEMA) and the NHS Purchasing & Supply Agency (NHS PASA) have published "Environmental purchasing in practice: guidance for organisations" – available from IEMA at <http://www.iema.net>