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Construction Industry Council

# Constructing for Sustainability

A Basic Guide for  
Clients and their  
Professional  
Advisors

Many publications have been written about Sustainable Development and - as a busy client - understandably you do not have time to read them all. This Guide attempts to summarise the key aims and objectives relating to Sustainability- what you need to know, and why.

You **do not** need to know everything there is to know about Sustainable Development! After all, it can appear a broad-ranging and daunting topic. But neither can you afford to ignore it: "It's not rocket science – it's more important than that!" (Jim Ure, ABS, 1998.) Fundamentally sustainability is about survival, both as individual businesses... and as a species. A growing number of people believe that those businesses that respond quickest - to the sustainability challenge - will prosper.

Always begin by asking yourself, '**do** I really need to undertake a development project?' and if the answer is 'yes' consider carefully '**where**' that should be?

You **do** need to make sure that sustainability falls clearly under the remit of your team of professional advisors. Some knowledge of the subject will help you to appoint the right advisors, set appropriate overall sustainability objectives, ask the right questions of them, and make the appropriate decisions in regard to your own projects.

**To quote Sir Neville Simms of Carillion, "Sustainability underpins future profits".**

Hazel McKay,  
Chairman of Clients Guide project steering Group/  
Deputy Chairman SDC

As a client you may consider that you are not required to play a key role in the construction process. The truth is that choices and decisions you make (in conjunction with your consultants) early in the process will determine the chances of achieving outstanding success in your construction projects, or not. A few years from now we will have a fully integrated construction industry: easy to buy from; full of ideas to meet your special needs; not requiring customer leadership. At the moment we have something of a half-way-house so it is important that you take an interest in the development of your projects.

Developing your project using the principles of sustainable development will ensure that your project is customer focused because sustainable development considers the whole life cycle of a project. This means your views and those of your project stakeholders are taken into account through out the life of the construction process (and beyond) and the needs of the end user – your customer – are never forgotten.

Focusing on adding customer value brings a new perspective to the 'costs' of design, construction and operating. Outcome-based solutions, say aiming at service levels from a hospital facility rather than specifying numbers of beds or maintenance costs, release creativity and continuous improvement.

**A little time spent reading this Guide and following up the sign-posted information will help you see the 'added value' that sustainably developed projects can bring to you and your customer.**

Don Ward,  
Chief Executive of Collaborating for the Built Environment  
[www.beonline.co.uk](http://www.beonline.co.uk)

# HOW TO DEVELOP A PROJECT SUSTAINABLY

The following sections aim to guide you, the client, towards realising profitable sustainable projects, buildings and structures. Your objective is high quality development, informed by the latest thinking on sustainability: economically astute, environmentally conscious and socially sustainable.

**The project team will require leadership from you if they are to innovate, and a clear shared vision of what is to be built.**

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## The Triple Bottom Line

When commissioning construction, there are good business reasons for requiring a sustainable development. If you look beyond the bottom line to the triple bottom line, you will see how your business could benefit.

The triple bottom line measures the economic, environmental and social sustainability of your project.

- **Economic sustainability** improves profitability by using your resources more efficiently – your workforce, raw materials, manufactured components, energy (in all its forms), water and waste.
- **Environmental sustainability** improves the management of natural resources, none of which are in infinite supply, and reduce the impact of emissions, effluent and waste.

Because non-renewable resources and natural environments are now publicly valued, there are increasingly financial costs and penalties for environmental carelessness. In contrast taking advantage of the many



*"If everyone on the planet consumed as much as the average person in the UK, we'd need three planets to support us!"*

Pooran Desai, Bioregional

opportunities to prevent harm to the environment could enhance your business image.

- **Social sustainability** improves relationships with all the 'stakeholders' in your project through out the process, from inception to demolition. As client you may feel you are the biggest stakeholder (along with your investors), but your workforce, suppliers and the immediate community also have big interests in your project. By recognising and harnessing their interests, your project will be more likely to move smoothly to satisfactory completion and be viewed as welcome addition to the local landscape.

**A Sustainable Development aims for synergy, rather than compromise, between these three factors. It secures a profitable project that functions well financially and for all stakeholders, whilst minimising economic, environmental and social costs.**

*"For the past 3.8 billion years or so, nature has been running a successful design laboratory in which everything is continually improved and rigorously retested. The result, life, is what works. Whatever doesn't work gets recalled by the Manufacturer. Every naturalist knows from observation that nature does not compromise: nature optimizes. A pelican, nearing perfection (for now) after some 90 million years of development, is not a compromise between a seagull and a crow. It is the best possible pelican."*

Amory Lovins

There can be no doubt that Government is committed to delivering sustainable development in the United Kingdom. On 24 February 2003 the Prime Minister, Tony Blair in a major speech announced:

'The challenge for this Government today is in continuing to integrate the goal of environmental modernisation into our vision of Britain. To combine greater economic development with better environmental impact - bringing the environment, economic development and social justice together.'

'At its core, modern social democracy stands for a high wage, high skill society, supported by decent environmental and social standards.'

'And it is through our actions we demolish the myth that sustainable development is only important for the well off – or that it is only the wealthy that have the time and resources to be green.'

Only a few years ago, the drivers for sustainable development were principally coming from Europe; and this country appeared to be reluctantly accepting the inevitable. That is no longer the case; the impetus is now within the United Kingdom. The UK was first to propose the challenging target of a 60% reduction of carbon dioxide emissions by 2050.

With such commitment at the highest level, it makes good business sense to see how **your** business can benefit from sustainable development, rather than waiting for punitive taxes to drag you along. Radical change in the construction and property sectors will be needed over the years ahead to meet the Government's targets.

Already there are important tax incentives to reduce waste going to landfill, use green energy and reduce greenhouse gas emissions. There can be no doubt more will follow when Government perceives them to be publicly acceptable.

**So when you are commissioning construction, explore the ways in which your development could make a bigger contribution; it can only enhance the reputation of your company, improve its investment rating, and save you money.**



Solar energy collected via photovoltaic (PV) panels is one form of renewable energy.

*'If you always do what you always did, you always get what you always got'*

Sustainable projects require a commitment to innovate, but need not entail greater risk. Arguably the risks of doing nothing - and building the same as before - are much higher. **A sustainable approach can reduce some of the key risks associated with construction.** Ask your professional team to explain their risk management plan to you. They should be aware of current thinking regarding the management of risk.

#### Appointing your Professional Development Team

A good relationship with your professional team of advisors will mitigate against certain risks. Projects are more likely to be completed on time and to budget if you have good channels of communication with your advisors and they in turn are able to communicate effectively with the workforce.

From the earliest stage of appointing the team you need to establish who is doing what and note this to your environmental advisors. Your environmental advisors will need to liaise with the rest of the team in order to monitor the environmental impact of the project at every stage.

There are also more general points to keep in mind when appointing your advisors such as:

- Have they worked on similar projects and can their performance on those projects be measured?
- Are they experienced in managing health and safety issues?
- Are they familiar with best practice guidance such as '*Accelerating Change*'? See [www.cbpp.org.uk](http://www.cbpp.org.uk)
- Do your advisors work well with important stakeholder groups?

**The checklists at the back of the Guide provide a list of questions to help you select your advisors and the professional team (to help check their sustainability credentials) as well as questions to raise once they are appointed.**

Detailed information on appointing the team is given in CIRIA guide C578 and in the CIC publication *Brownfields – building on previously developed land*.

Very inexperienced clients will find the CIOB guide '*How to use the Construction Industry: A Client Guide*' a useful publication to refer to.

**Identifying, Minimising and Managing Risks**

**How Sustainability can Reduce Risks**

Risk	Purpose	Mitigating Action
<p><b>Green taxes</b> the construction process is affected directly or indirectly by the following taxes:</p> <ul style="list-style-type: none"> <li>• Climate change levy</li> <li>• Landfill tax</li>   <li>• Aggregates levy</li> </ul>	<p>Information on current and proposed legislation can be found at: <a href="http://www.environment-agency.gov.uk/netregs">www.environment-agency.gov.uk/netregs</a></p> <p>reduce carbon dioxide emissions reduce volume of waste going to landfill sites prevent depletion of finite resources reduce the negative impact on the landscape of quarrying</p>	<p><b>Reduce your exposure to green taxes:</b></p> <ul style="list-style-type: none"> <li>• Good insulation + efficient heating, lighting and ventilation systems = less energy used = less carbon dioxide</li> <li>• Use resources efficiently + recycle site waste + use pre-fabricated components = less site waste to go to landfill</li> <li>• Use alternative and recycled materials where possible</li> <li>• This good practice will help you anticipate and 'future proof' against new green taxes</li> <li>• Use alternative and recycled materials where possible</li> </ul>
<p><b>Planning delays</b></p>	<p><b>Avoiding costly planning application processing and delays</b></p>	<ul style="list-style-type: none"> <li>• Advocate a sustainable scheme</li> <li>• Propose the development of a brownfield site</li> <li>• Encourage biodiversity</li> <li>• Ensure proposals are sympathetic to the needs of the local community</li> </ul>
<p><b>Loss of reputation</b></p>	<p><b>Reduce resistance</b> to your project, locally - and to your company, globally</p>	<ul style="list-style-type: none"> <li>• Involve community stakeholders such as neighbours and local service providers</li> <li>• Require workforce to adopt 'Considerate Constructor' scheme</li> <li>• Follow good Health and Safety Practice</li> <li>• Common sense approaches will enhance your reputation, and avoid disputes and delays</li> </ul>
<p><b>Access</b></p>	<p>More accessible buildings can be used by more people</p>	<ul style="list-style-type: none"> <li>• Ensure your building complies with access legislation</li> <li>• For more information about access issues go to <a href="http://www.access-ability.org">www.access-ability.org</a></li> </ul>

### Access to Capital

*Responsible management practice and a core business that enriches society provide reliable indicators of robust financial performance.*  
Morley SRI Brochure 2003

Current trends suggest that governments and society will increasingly reward sustainability and penalise unsustainable practices and waste. Requirements introduced in the Government White Paper, Modernising Company Law (2002), call for directors to, 'consider both the short and long term consequences of their actions...and take into account where practicable relevant matters such as their relationships with employees and the impact of the business on the community and on the environment'.

The Turnbull Report (1999) changed the corporate governance code by requiring companies to note environmental, reputational and business probity issues in their risk management strategies.

The Pension Act (2000) was amended so that UK pension funds and Local Authority pension schemes now have a mandatory obligation to demonstrate, via their 'Statement of Investment Principles' (SIPs) disclosures, to what extent social, environmental and ethical considerations affected their investment strategies. The evidence suggests that the 'triple bottom line' is becoming part of mainstream thinking in the financial sector.

**In short, now is a good time to think about measuring and reducing your environmental and social impact and**

**considering any ethical implications eg. designing for minimum waste and energy efficiency. This should lead to greater access to finance and investment capital, and ensure legal compliance; improving your sustainability credentials to secure future contracts and investment. It has been noted that companies listed under the Dow Jones Sustainability index and the FTSE4Good Index seem to outperform companies rated under other indices.**

UK and Global fund managers are seeking out socially responsible investments (SRIs). Fund managers are, in part, responding to shareholder pressure; many shareholders feel uncomfortable about investing in financial products that are perceived to be unethical or environmentally unsound.

The main reason why fund managers are taking an interest in SRIs is because they offer a lower risk option.

Morley is one of several fund managers that takes SRIs seriously. Morley's commitment to SRIs demonstrates that large, commercial investors are interested in sustainably developed projects (globally Morley manages £105 billion worth of assets). Opposite is a matrix that shows how Morley rates the sustainability of companies.





**Stakeholder Involvement**

**Why Listen?**

**Question:** Who is best positioned to distinguish the strong points, weak points, successes and failures of a project?

**Answer:** *Employees, suppliers, shareholders and consumers.*

**Question:** Who can give advice and have a valuable input into decisions?

**Answer:** *Regulatory agencies, the Government and professional bodies.*

**Question:** What other external influences can have considerable affects on a project?

**Answer:** *Unions, local communities, members of the media and special interest/ pressure groups.*

**Good quality 'stakeholder' relations are a key feature of sustainability.**

The Berkeley Group Strategic Sustainability Model



This graphic demonstrates the benefits of involving stakeholders. It is taken from Berkeley Group plc's Sustainability Report 2002 which can be found under 'Sustainability and the Environment' at [www.berkeleygroup.com](http://www.berkeleygroup.com)

These stakeholder groups are at the core of every construction project and significant benefits can be derived from identifying and involving them. Engaging with stakeholders is of obvious value in the prevention of disputes and delays. It can also help to find solutions to unexpected problems that otherwise could lead to energy, time, and money being wasted.

Ask your professional team to open channels of communication for stakeholder dialogue . This could also be useful when devising strategies and policies and help larger companies avoid operating in a 'corporate vacuum'.

**Demonstrating flexibility and transparency can lead to solutions that enable the local community to be more supportive of your project. It can also build a reputation for your company that will assist the passage of future projects.**

**You need to sustain peoples confidence, and build trust, if you wish to stay in profitable business.**

*Countryside in Partnership plc encourages stakeholder involvement on their projects by employing a resident liaison officer. To find out more about this initiative go to [www.cpplc.com/portal.asp](http://www.cpplc.com/portal.asp) and download the brochure from the section on social housing.*

Health and Safety is an essential element of sustainable construction and aspects of health and safety should be monitored at each stage of development. A project is not sustainable unless construction, occupation, maintenance and demolition can be carried out safely, without risking ill health or injury during any of these processes.

The CDM Regulations (1994) are concerned with planning, teamwork and co-ordination in the preparation and management of Health and Safety and they place specific responsibilities on the client. They apply on new build construction, alteration, renovation and maintenance of structure, site clearance, demolition and dismantling of structures and temporary works. The regulations apply to any project of more than 30 days that involves four or more people on site at any one time.

The client is responsible for Health and Safety from inception of the project and must appoint a Planning Supervisor as a co-ordinator. Adequate resources should be allocated by the client for Health and Safety in accordance with the size and nature of the project. The client is also responsible for the Principal Contractor and Designer, who must both be competent, and should ensure that they comply with their duties under the regulations.

A Client must supply relevant Health & Safety information about their property including existing structures and the site.

A Client must ensure that a Health and Safety File is available for any future construction work.

The Health and Safety File provides information on the clients

property which people are likely to need, but could not be expected to know, for construction operations which include cleaning, maintenance, alterations, refurbishment and demolition.

It alerts them to significant or hidden risks and helps them to decide how to work safely. The level of detail should be proportionate to the risks likely to be involved in such work.

**The Health and Safety File can provide significant benefit to the Client by minimising the cost of future work. The Client must take reasonable steps to ensure it is kept up to date and it must be passed on to the Clients successor with the transfer of the property.**

More detailed information on health and safety issues can be found on the Health and Safety Executive (HSE) website: [www.hse.gov.uk/](http://www.hse.gov.uk/)

Specific guidance for clients on the CDM Regulations can be found on the Association of Planning Supervisors (APS) website: [www.aps.org.uk/aclienti.html](http://www.aps.org.uk/aclienti.html)

**Multiple, cumulative and compound benefits of change**  
*Rethinking waste management on a project can in turn significantly improve site conditions from a Health and Safety perspective. A safe and tidy site minimises accidents and contributes to the retention of a stronger, more motivated and productive workforce. It conveys a better public image and may prevent accidents. The Health and Safety Executive can close down a site at anytime if their inspectors believe it to be unsafe.*

### REQUIREMENT - Is construction necessary?

The first question to be addressed is, 'do you really need to undertake a development project?' Have you thought of refurbishing instead of redevelopment? Is the true need for the project established, and is it well conceived or is it based on a false premise. These questions are fundamental, so it is important to make a good decision. Keep an open mind and seek the advice of your professional team.

It may help to consider briefly the question "what benefit will this development bring to the community here in seven generations time?" The 'Inuit' Americans used this 'seven generation' yardstick to test all the decisions they took. Reflect on construction projects of the past that still serve us well today. What distinguished those from ones that have not stood the test of time?

Of course we need some new construction. But asking the simple question 'Is the building or structure truly necessary?' may pay dividends.

If you are sure new construction is required, have you considered where the best location is for your business? Is it best to build here or would another location be more sustainable? Is it a 'brownfield' site, would it create a mixed-use development and is it readily accessible by public transport? Again you'll do well to seek guidance from your project team.

When you have concluded that your development project should be progressed, then aim to achieve buildings and structures that are sustainable.

Recent research by Dr Sarah Sayce et al at Kingston University\* found that sustainable construction demonstrates six Ls:

- Longevity
- Loosefit (flexibility)
- Low Energy
- Location Sensitive
- Likeability (internal stakeholders)
- Loveability (external stakeholders)

*Westborough Primary School a permanent structure built from cardboard that works with the properties of the materials used. See RIBA Journal Sustainability Awards at [www.architecture.com/go/Architecture/Also/Awards\\_324.html](http://www.architecture.com/go/Architecture/Also/Awards_324.html)*



*Courtesy of Buro Happold*

For example, the research defined the longevity of a structure by surveying which factors were more or less likely to impact positively on the continuing life of the building. The findings were ranked as below:

**Table 1: Top five issues considered most important in promoting longevity**

Rank	Question
1	The building has a long term durable fabric
2	The building is capable of adaptation to reflect the changing needs of the user
3	The building is capable of being used in an economical way
4	The location of the building is within a conservation area or is listed
5	The building is able to be adapted to new technology requirements

**Table 2: Bottom five issues considered to be least important in promoting longevity**

Rank	Question
27	The complexity of environmental control systems affects the survival of the building
28	The ease of access for disabled or disadvantaged persons affects the building's chance of survival
29	Fashion in planning types of workspace affects the long-term survival of a building
30	The use of system building with interchangeable components enhance the chances of survival of the building
31	Fashions in appearance and perception or viability of use by the community affects building survival

### Does your project have 6 L's?

\* First published in Construction Confederation conference on sustainability papers, 2000 and in the International Sustainable Development Research Conference (ISDRC) 2002 papers as the 5 L's (ISBN 1 872677 41 X).

## DESIGN

*It should be made clear at the start of a project that you aim to adopt the principles of sustainable development. 'Sustainability' will be more easily and effectively achieved than if 'bolted-on' to the project as an after-thought. Good design needs a good brief, and sustainability objectives should be clear in that brief.*



Aiming for sustainability may appear to you to be just one of many issues to be considered when looking at design quality, but it can be the guiding and principal influence, providing an underlying clarity of vision. The new Wessex Water HQ in Bath (pictured) was designed with 'exemplary sustainability' as a core client objective. It won the 2002 RICS Building of the Year Award against strong competition internationally.

More information on the Wessex Water Operations Centre can be found at [www.wessexwater.co.uk/operationscentre/index.html](http://www.wessexwater.co.uk/operationscentre/index.html)

In 2001, another sustainable project, The Eden Project in Cornwall took overall first prize in the Better Public Buildings Awards. It has been well publicised and has its own site at [www.edenproject.com](http://www.edenproject.com)

### **Will the application of sustainable principles make construction look any different?**

Sustainability can be invisible, and this is why 'green-labels' and sustainability Key Performance Indicators (KPIs) for projects as developed by M4I/Rethinking Construction\*, BRE (BREEAM Eco Homes checklist for development), ICE (CEEQUAL), Arup's (Spear) and CIRIA can be so important.

But just as often, sustainability heralds a new aesthetic. Just as form has been dictated by structural thinking (in designing bridges, Grid shell buildings and the Eden project.) so design can be equally influenced by environmental drivers such orientation, energy management or ventilation.

\* M4I, the Movement for Innovation/Rethinking Construction are now known as 'Constructing Excellence'.

*Sainsbury's Millennium Store at North Greenwich attempts to break the mould of traditional food store design by using natural ventilation, day lighting, night cooling, and energy recycling.*

*Natural ventilation is provided through vents located around the perimeter of the building. North-facing roof windows allow a significant amount of daylight to reach the shopping space below, reducing the need for artificial lighting.*

*A significant amount of concrete is exposed; it is designed to absorb heat during the day and cool at night. The store is partially enclosed on its sides by earth mounds, which are designed to provide thermal insulation for the building. There is no air conditioning in the store; mechanical displacement ventilation is used to bring fresh air into the store when needed. Discharge vents are integrated with shelving.*



*For sustainable housing case studies see [www.buildingforlife.org.uk](http://www.buildingforlife.org.uk) and the BedZed zero energy housing project (above) at [www.bioregional.com](http://www.bioregional.com)*

*The development plan for the De Montfort University shows the benefits of adopting a holistic approach to sustainable design. See [www.dmu.ac.uk/info\\_for/visitors.jsp](http://www.dmu.ac.uk/info_for/visitors.jsp)*

*Portcullis House has an integrated low-energy scheme that features prominent ventilation towers. See [www.portcullis-house.com](http://www.portcullis-house.com)*

*City Hall, London has been designed as a model of democracy, accessibility and sustainability. See [www.fosterandpartners.com](http://www.fosterandpartners.com)*

A matrix of case studies of exemplar projects can be found on the RIBA Awards site. Go to [www.architecture.com](http://www.architecture.com) and other sustainable buildings can be found on ECD Architects' site at [www.ecda.co.uk](http://www.ecda.co.uk)

**In the early stages of your project you will find it useful to visit some 'exemplar' sustainability projects -with all your design team- to see first hand how things might be done radically differently, and perhaps encourage the team to 'think outside of the box'.**

You may also find the Design Quality Indicator (DQI) developed by the Construction Industry Council a useful assessment tool to evaluate the design quality of buildings, at any stage during production. The DQI focuses specifically on assessing the value of the product – the completed building – and is a unique tool to enable everyone involved in the production and use of buildings to gain more value from design. Development was sponsored by the DTI, CABE and Rethinking Construction

See [www.dqi.org.uk](http://www.dqi.org.uk) for the web based tool and list of trailblazers.

## FUNCTION

### Sustainability and success

It has been called a 'three-legged stool' and a 'triple-bottom line' but for most people doing business today, sustainability means pragmatism, common sense and a true feel for the economic landscape of the future. It means better, more successful business

### Sir Martin Laing Report – Risk, Reputation and Reward

To achieve construction that is 'fit' overall, (fit for the future) the 'triple bottom line' of sustainability can be expressed as:

- **Fit for purpose** financial or economic sustainability
- **Fit for people** social sustainability
- **Fit for planet** ecological sustainability

**Focus on the operation phase and capture the wealth of experience and views of end users. It pays to focus - early on - on how the project will ultimately function, and who will manage and maintain it.**

A principal function of any built structure is to 'support' the user or occupant in their core activities. For example:

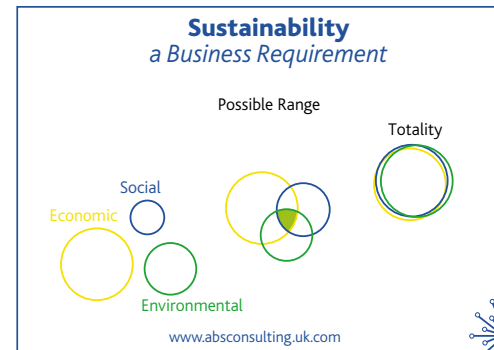
- In a home, to provide shelter and quality of life
- For a bridge, road or railway, to link communities and enhance mobility
- In an office, to support a healthy, productive and inspired workforce
- In a school (or hospital), to support the learning (or healing) process

**Seek the input and active involvement of the ultimate end-users of the project (or their representatives). Involve those with operational experience, and those who will ultimately manage the project e.g. Maintenance Staff, Facilities Managers. This is common sense but often forgotten.**

*Sustainability is about synergy not compromise.*

The model below shows that in the past, Environmental, Social and Economic domains were treated separately, with much more importance being attached to the (larger) Economic circle and much less concern about environmental or social issues (smaller circles). Businesses are now discovering 'joined up thinking' - sustainability occurs in the green zone, where Environmental, Social and Economic drivers and objectives converge. The triple bottom line.

In the future, businesses must operate entirely in the overlapping green zone to be sustainable - Totality - (RHS).





### Is it 'Fit for Purpose' – will it function: today, tomorrow and in the long-term?

**Ask yourself what your real objective is, as client or developer: what is your core purpose? Is it to build it cheap and sell it quick? Or it is to satisfy your ultimate clients – the project's end users? If you and your designers fully consider their needs, and consult them early in the design process, then the value of your product, and your reputation, should both be enhanced.**

As Client you may also like to think about possible future users and hence future asset value. By briefly stepping back and envisaging what function the project might serve well into the future, you have the opportunity to deliver projects that are not only 'fit for purpose' now, but also in the longer-term. Such projects may well secure a premium now, as well as enhancing long-term asset value.

Flexibility in use, adaptability of materials used, and ease of deconstruction are key elements of future functionality. How easily could your project be dismantled like a car is, at the end of its life.

*Swiss Re Tower claims to be London's first environmentally progressive tall building, with double height retailing units at street level to serve the local working community at the base of the 40 storey tower; it's mode of construction also allows for it to be deconstructed at the end of its useful life. See [www.fosterandpartners.com](http://www.fosterandpartners.com)*

### Is it Fit for People – its users and the surrounding community?

**Are you addressing the true needs of the people whose lives will be most affected? Have you identified who they are? Ultimately you are improving your reputation if you are concerned to create a built environment that is liked by people and communities. Concern for people pays.**

As well as achieving functionality for end users, you will do well to consider other stakeholders:

- Health and safety of the workforce that construct the project
- Well-being of all those who will support the operation
- Impact of the project on the local community
- Integration and interdependence with the surrounding architecture and infrastructure

See [www.cabe.org.uk](http://www.cabe.org.uk) to view the award winning 'Lewisham Children and Young People's Centre'.

### Continuous Commissioning

ABS consulting in Partnership with Abbey National, CIBSE, Commtech, CSA, Mid Career College, Nationwide, DTI Partners in Innovation and Unison have developed a 'Continuous Commissioning tool' ('ConCom').

The building is given a holistic 'fitness check' and areas of inefficiency or ineffectiveness are identified. At the same time, a survey is made of overall occupant satisfaction. The data is collated, evaluated and remedial advice is given. For more information go to [www.theFBnet.com](http://www.theFBnet.com)

### Is it Fit for Planet – ecologically benign... or even ecologically beneficial?

The design team can reduce the impact the structure has on the environment by 'designing in' environmentally more sustainable components such as passive ventilation systems. They should consider:

- the ecology of the project
- does it have a big appetite for natural resources
- will it generate a lot of waste
- could harmful by-products be avoided

### 'Treading lightly on the planet' makes good sense and is increasingly rewarded



Glastonbury House, Westminster



INTEGER Millennium House, Watford



*There is evidence that environmentally sensitive construction reaps significant benefits for owners and users, as well as for the planet. Projects such as the NMB (now ING-Barings) Bank in Amsterdam, Wessex Water HQ in Bath and others report lower absenteeism and improved well-being of employees, with perceived increases in motivation and productivity.*

Go to [www.earthcentre.org.uk](http://www.earthcentre.org.uk) for practical demonstrations of environmentally sustainable projects at the Earth Centre in Doncaster

Here are three examples of INTEGER projects - buildings that use sustainable components, details of which can be found on the web site. Go to [www.integerproject.co.uk](http://www.integerproject.co.uk)

### Paving the Way for the Planning Application

**Securing Planning Permission is often perceived to be the biggest hurdle along the critical path. With a bit of forethought, that need not be the case. It is worth making the effort to research planning requirements at an early stage.**

The relevant planning policies are to be found in a Council's Development Plan, if it is up to date, and the Planning Policy Guidance Notes that set out Government policy.

A good starting point is Planning Policy Guidance Note 1 'General Policy and Principles' which sets out the 'Government's Approach to Planning' highlighting three priorities: **sustainable development**, **mixed use** and **good design** and a recently updated development plan will reflect these same priorities.

**A proposal that demonstrably advances the principals of sustainable development is much more likely to get planning permission than one that does not. So it makes sense to start by designing sustainability into your development, so that you can say with conviction that your development would score well against relevant indicators.**

Larger development proposals may have to be accompanied an Environmental Impact Assessment, so check the Regulations to see if they apply, and take advice from your professional team on interpretation. Even for small developments, local planning authorities are now evolving their own sustainability checklists, so it makes sense

to contact the authority at an early stage to see if they have one. In all cases you are likely to fair better if you are proposing to reuse previously developed land, especially brownfield sites.

It is also very important to discuss your proposal with the relevant planning officer at an early stage and heed their advice. To make sure you have clearly understood them, consider sending a note to confirm your understanding of the advice you were given.

Then prepare your submission so that it addresses the matters of interest to the planning authority following the structure of their reports to committee. Your aim is to make it very easy for the planning officer to write his/her report. Broadly speaking you need to show how your development complies with relevant policies in Planning Policy Guidance Notes and the Development Plan. Then following the Authority's Sustainability Checklist comment on the features offered by your proposal and how you have attempted to mitigate any problems. If a local planning authority has not published its own sustainability checklist, it is a good idea to use one offered by a best practice authority such as Welwyn Hatfield District Council. Go to [www.welhat.gov.uk](http://www.welhat.gov.uk)

#### *Some useful web sites to refer to are:*

[www.rtpi.org.uk](http://www.rtpi.org.uk) – The Royal Town Planning Institute: general advice on planning and sustainable development plus links to related sites.

[www.odpm.gov.uk](http://www.odpm.gov.uk) – Office of the Deputy Prime Minister: this site gives the Government's perspective on planning and sustainable development plus links to other relevant sites.

[www.wellbuilt.org.uk](http://www.wellbuilt.org.uk) – Wellbuilt: Advice on best practice as applicable to local authorities.

**Is it 'Fit for Purpose' – will it function: today, tomorrow and in the long-term?**

A well managed site is a productive site and more likely to deliver on environmental targets, avoid waste, keep to budget and avoid accidents – all elements that contribute towards the success of a project.

Whilst it is not the direct responsibility of the client to implement site management, it is important to select a main contractor that will understand the importance of practising sustainable construction during the project. As a guide, a contractor that is aware of and involved in the sustainable construction agenda may have done some or all of the following:

- Committed to high standards of environmental management – following ISO 14001 (a voluntary international standard in the environmental field)
- Been involved in obtaining Investors in People (IIP) status.
- Committed to the Considerate Constructors Scheme (a voluntary code of practice endorsing good conduct on sites)
- Completed past contracts successfully and sustainably
- Have a good Health and Safety track record

Furthermore, the client may wish to monitor site management processes to ensure that waste minimisation and efficient resource management are being applied. Clients should discuss the following options with contractors:

- Waste segregation and auditing
- Energy consumption and efficient operation of machinery
- Use of prefabricated components
- Use of low energy and energy saving materials
- Use of renewable energy
- Using and selling reclaimed and recycled materials
- Storage facilities and procedures
- Local sourcing of materials
- Efficiency of ordering materials
- Site security
- Provisions made to comply with Health and Safety regulations and good practice

The following examples show what benefits can be achieved through good site management in the areas of waste and recycling.

**Construction Waste Tax = £1 billion per annum**

*That's the landfill tax on the millions of tonnes of construction waste going to landfill – estimated between 80 and 150 million tonnes.*

*Construction waste = 17% of all waste arisings  
Germany requires 85% recycling of construction waste  
Reduced site waste = increased savings*

**Waste – 'a resource in the wrong place!'**

*During demolition, refurbishment materials can be sold to external contractors, who will recover the waste and after a degree of refining, pass the material back to industry as a higher value material.*

**Aggregates Levy = tax on primary aggregates**

*This is a strong incentive to source recycled materials or secondary aggregates, particularly for bulk filling, pavements or roads.*

*To locate recycling depots or suppliers of secondary aggregates and recycled materials see [www.ciria.org.uk/recycling](http://www.ciria.org.uk/recycling)*

*Bexley London Borough made savings by using recycled concrete aggregates in footways; see [www.wrap.co.uk](http://www.wrap.co.uk)*

*At Langley Park, Laing Homes saved £½million by re-using and reclaiming demolition materials already on site and £600 per housing unit was saved on waste disposal.*

*500 000 clay roof tiles were removed, cleaned and packaged  
40,000 tonnes of demolition concrete crushed and used as bulk fill, capping or sub-base*

*Total saving = 3.5% Project Cost*

Is constructing sustainably always viable?

Whole Life Cycle Costing

The Whole Life Cost Forum (the national initiative on construction whole life costing) defines whole life costing as, 'the systematic consideration of all relevant cashflows associated with the acquisition and ownership of an asset'. This can be applied to a built structure or a small component. Whole-life costing as a technique, 'quantifies the financial value of a structure over its whole life, balancing capital with revenue costs to achieve an optimum solution'.

Applied to your own projects, you should examine the costs of your proposed development throughout its lifecycle, as opposed to just its construction costs.

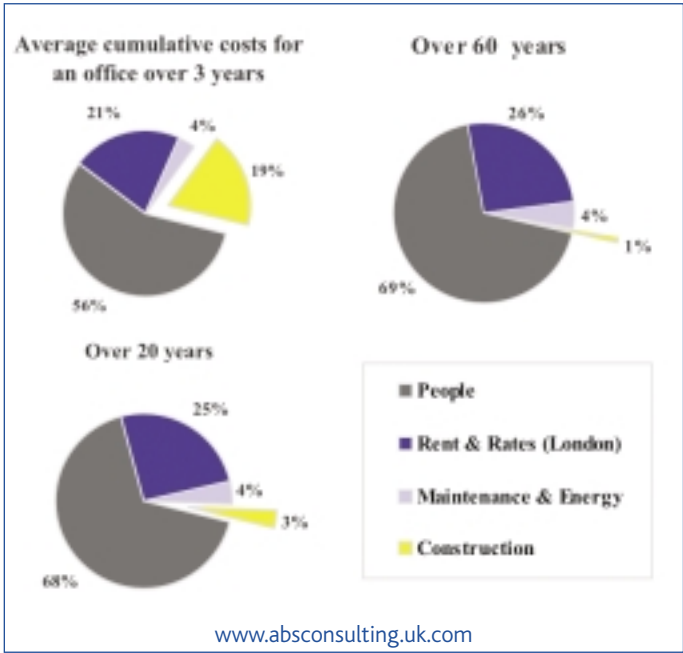
Typically for an office building;

For one unit spent on design, five are spent on construction, 20-50 units on operating costs over its lifetime and 200-500 units on the occupants' salaries.

If an office is designed and constructed to halve operating costs, the savings would be 10-25 units.

If the design makes occupants just 5% more productive, the savings would be a further 10-25 units.

These savings would require more input at the design and construction stages, but the client owner could justify spending up to five times more on both design and construction, without increasing the life cycle cost of the office! **That's a staggering amount of additional resource that could be put into designing and constructing a better building.**



Life cycle costing of construction has become a more common approach through Public Finance Initiatives (PFI) and Public Private Partnerships (PPP), and increasingly longer-term sustainability considerations are specified in the project briefs. With single companies being both the owners and managers of the new buildings and projects, there are clear incentives to reduce operating cost and improve occupant well being by investing more in design and construction.

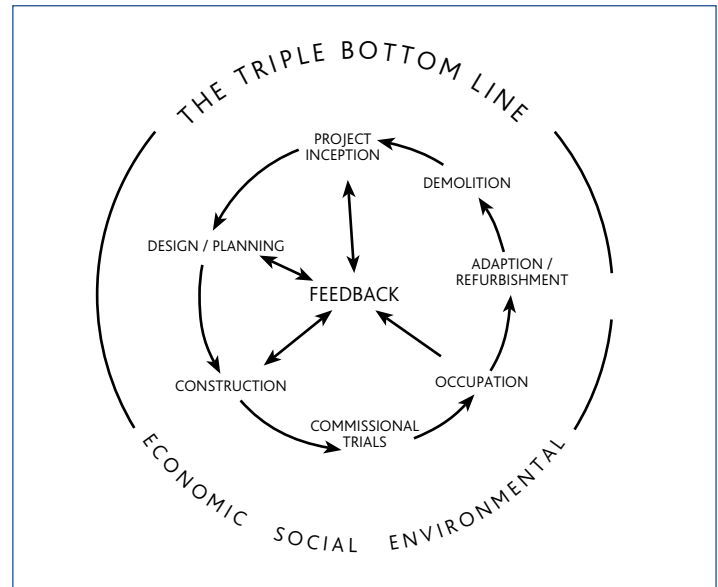
Similarly if the building is owner occupied, it makes sense to spend more capital up front to reduce operating budgets, but progress to this end has been much slower. 'Old habits die hard' and traditional accounting, particularly in the public sector, treats capital and revenue budgets as discrete financial 'pots' without regard for the influence of capital spending on revenue operating costs. More flexible accounting could reap staggering savings.

Whole Life Cost Forum, has developed a comparator software tool which allows whole-life costs to be compared on a like-for-like basis. For more information on the tool go to [www.wlcf.org.uk](http://www.wlcf.org.uk)

*An example of how whole life costing can work*

***Carillion has demonstrated how life cycle costing can improve overall quality and sustainability.***

*Darent Valley Hospital, Kent is the first hospital to be built and operated under the private finance initiative (PFI). The brief was to design, build, operate and maintain a patient friendly therapeutic environment which meets the highest quality standards.*  
[www.carillionplc.com/strengths/construction](http://www.carillionplc.com/strengths/construction) or  
[www.carillionplc.com/strengths/pfi](http://www.carillionplc.com/strengths/pfi)



**Asset Value**

Consider if you were acquiring a property for your own HQ? How much extra would you be prepared to pay, if you knew the building:

- Would ultimately provide capital growth significantly over and above the market in general?
- Is in the right place, not subject to flooding, and with firm foundations?
- Is within a stable and established healthy diverse economy and community?
- Will not only cost nothing to run, but will produce a saleable revenue – from exporting excess free solar energy?
- Is flexible and adaptable to change of use, and ultimately easily deconstructed, with no future liabilities?
- Has maintenance free surface finishes throughout?
- Is a landmark 'green' building, loved equally by those who use it and those who pass by?

Conversely, would you be prepared to add to your portfolio a 'gas-guzzlers' building or a 'time-bomb' with refrigerants, old plant, poor fabric, contaminated land, etc. Even if energy costs remain low, public attitudes towards profligate energy use and environmental protection may change, with the potential for future legislative burdens.

**The major fund holders are actively looking at exactly these issues when making investment decisions about property and construction. It is not just the ethical and SRI funds that are seeking to secure long term value by avoiding companies that are rooted in unsustainable habits and past mindsets.**

Gunwharf Quays below was built on a 'Brownfields' site. Materials from non sustainable sources were specifically precluded from the construction. A total of more than 600,000 local bricks were used from Sussex, Micklemarsh and theNew Forest. It is now a thriving urban centre providing homes, shops and leisure facilities





## How sustainable are YOU

The points below start to describe the desired 'level' of your 'ambition' - for a truly sustainable project. The aim of the checklist is to provoke discussion and to help you decide the highest level (of collective ambition of the project team) which will prove successful:

### How do you score as a Client?

- Do you wish to be recognised nationally by peers. Do you wish to be nominated/awarded prestigious awards such as the RIBA Sustainability Award, the Civic Trust Sustainability Award, the RICS Building of the Year, Building Awards, Public Building of the Year?
- Do you wish to achieve excellence in sustainability across a very broad range of sustainability issues and indicators – M4I Rethinking Construction/CIRIA sustainability KPIs/indicators?
- Have you used BRE's MaSC Matrix to check how sustainable you currently are?
- Do you want your developments to be fundamentally popular with all their users?
- Do neighbours, neighbourhood, and local communities generally view your projects positively? Ideally inspiring civic pride?
- Do you use life cycle costing to justify investments up-front that will make savings for the operational or 'Estates' team in the longer term?
- Will the operational team come to view your buildings as their very best and most efficient, with low ongoing overall operational costs including maintenance?
- Will all members of your design team be able to take pride that it is 'their best work to date' within commercial restraints?
- Will this development score the highest standard, Excellent, for its overall environmental credentials under schemes such as BREEAM, EcoHomes, CEEQUAL, Spear etc.?
- Do your projects have promotional and educational benefits, demonstrating best endeavours towards a sustainable future?
- Can your developments serve a useful purpose at the end of their intended lifespan?
- Can your buildings and structures be readily de-constructed and eventually re-used or recycled?

### Sustainable Design Team – How well does your team score?

#### *Does your team?*

- Have a track record on demonstrably successful sustainable projects.
- Show a good understanding -and commitment to- sustainability principles and the triple bottom line.
- Consider Health and Safety issues during the construction process and in regard to ongoing maintenance.
- Minimise the impact of construction materials. Embodied energy and the supply of materials are often overlooked especially during the construction phases of a project. Renewable sources and their recyclable qualities must be considered along with factors such as transport energy and surface finishes and life cycle maintenance needs.
- Consider local biodiversity and nature conservation issues at the earliest stage of the project. Look at local authorities and other organisations that have established a biodiversity action plan. One example is Tower Hamlets in London. Go to [www.towerhabitats.org](http://www.towerhabitats.org).
- Employ sound principles of energy conscious design at all times e.g. maximise natural delighting, explore natural ventilation techniques, control and zoning capabilities and consider water conservation.
- Examine the potential for the use of renewable energy.
- Consider maintenance e.g. of building services. Designers should be encouraged to simplify operation, reduce pipe runs and complexity, provide comprehensive zoned controls, and consider any future maintenance and replacement.
- Educate all parties involved. Ensure end-user training on operation is included as part of the hand over package. Hand-on training to subsequent users. Value feedback from users and occupants. Continuously evaluate and maintain performance during operation – re-tune and/or re-commission as necessary.
- Actively promote "green" solutions beyond the design of the project. This may range from sustainable transport or purchasing policies (not just during operation but also construction), community tree planting initiatives and other local schemes such as recycling and composting.
- Advocate the use and promotion of locally sourced materials and labour where possible. Recycling materials on site should also be considered to minimise resource use.
- Regularly check against relevant construction sustainability indicators to monitor the progress of the project.**

### Achieving Best Practice at Handover – How does your project score?

Frequently well-designed and constructed projects fail because of lack of proper 'handover' and attention to the operation phase of the project. These principles highlight the importance of 'setting the project to work' according to the designer's intent.

- Ensure that the client recognises commissioning as a crucial construction phase to realise his/her objectives for energy efficiency and sustainability.
- Treat commissioning as a managed activity and develop the commissioning objectives early.
- Adopt an integrated approach to commissioning and involve all relevant parties.
- Commission the whole building as well as the systems.
- Seek advice from a commissioning expert early on in the project.
- Hold regular reviews to ensure commissioning objectives are being met.
- Encourage designers to use solutions that minimise the need for commissioning.
- Rigorously defend the programme time for commissioning.
- Assign responsibility for commissioning to one focal point.
- Ensure that end-user training on building operation is included as part of the hand-over package. Hand on training to subsequent users.
- Provide appropriate simple information in the operation and maintenance documentation.
- Maintain communication between designers and operators after the defects liability period.
- Encourage and value feedback from occupants.
- Continuously evaluate and maintain building performance during operation – retune and/or recommission as necessary.**

### How to develop sustainable projects

This is a summary of the key points covered in this Guide and should be a useful checklist when discussing the brief with your professional team.

- Consider the ultimate reason for the project and the ultimate needs of the project's users. This safeguards longer-term asset value.
- Select a design team that can point to a track record in sustainability. (Past projects, evidence of commitment to sustainability in their own business e.g. ISO14001).
- Ensure that the need for sustainability is properly expressed in the brief.
- Appoint a Sustainability Appraiser or Environmental Coordinator (E-Co) see [www.theFBnet.com](http://www.theFBnet.com).
- Ensure the Appraiser or Coordinator provides regular progress updates on the environmental/sustainability aspects of the project.
- Visit sustainability exemplars in your sector, with the design team.
- Visit centres that demonstrate sustainable lifestyles, with design team.
- Consult widely with all stakeholders including community groups – ensure their concerns regarding noise, dust, traffic etc. are considered.
- Actively encourage the use of local knowledge. This is PARTICULARLY useful in identifying existing features i.e. wildlife, ecological systems.
- Ensure the entire project team is aware of sustainability points that the design must meet.
- Determine the optimum level of 'ambition' that is appropriate – aim high.
- Create a Total Project Specification – what is really wanted of the project and communicate this widely to gain stakeholder support. This will reduce both the cost and risk of innovation - if all are 'on board'.
- Set the design team an overall target using tools such as BREEAM, EcoHomes, CEEQUAL, and M4I Rethinking Construction/CIRIA sustainability indicators/KPIs and test design options against recognised schemes (e.g. sustainable checklist for developments) - Aim high.
- Indicate whole life cost implications of different options.
- **Commit personally to achieving the highest possible standard – the design team need to believe that you are serious.**

## Some Useful Guidance:

This list is just a sample of some of the key texts your advisor should be aware of and you, as the client, might find useful to refer to.

Many more documents can be sourced through the web site addresses listed below (and throughout the text of this Guide).

### Recommended reading list:

Sustainability and Construction – [www.ciob.org.uk](http://www.ciob.org.uk)

Risk, Reputation and Reward – Report by the Sustainable Development Taskforce – [www.bre.co.uk](http://www.bre.co.uk)

Managing Sustainable Construction (MaSC) – [www.bre.co.uk](http://www.bre.co.uk)

Client Guide to Sustainable Construction – CIRIA  
[www.ciria.co.uk](http://www.ciria.co.uk)

Sustainable Construction Action sheet for clients – Construction Best Practice at [www.cbpp.org.uk](http://www.cbpp.org.uk)

Comprehensive Project Appraisal: towards sustainability – RICS/Environment Agency [www.rics.org.uk](http://www.rics.org.uk) and [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

The HOK guidebook to Sustainable Design by Mendler and Odell

### Other CIC Client Guides in this series:

Brownfields – building on previously developed land

Water Conservation in Business – a briefing guide for construction clients and building owners

Building for Energy Efficiency – the clients briefing guide

### Other useful sites for Guidance not listed in the text include:

Department for Trade and Industry/publications – [www.dti.gov.uk](http://www.dti.gov.uk)

Department for Environment, Food and Rural Affairs – [www.defra.gov.uk](http://www.defra.gov.uk)

Sustainable Development International – [www.sustdev.org.uk](http://www.sustdev.org.uk)

Rethinking Construction\* - [www.rethinkingconstruction.org](http://www.rethinkingconstruction.org)

Energy Saving Trust - [www.est.co.uk](http://www.est.co.uk)

The Carbon Trust - [www.thecarbontrust.co.uk](http://www.thecarbontrust.co.uk)

\* Changing to Constructing Excellence

### Web site addresses listed in the text:

Web site addresses are listed in the order that they appear in the text.

[www.beonline.co.uk](http://www.beonline.co.uk) – Collaborating for the Built Environment, known as 'BE'

[www.cbpp.org.uk](http://www.cbpp.org.uk) – Construction Best Practice

[www.environment-agency.gov.uk/netregs](http://www.environment-agency.gov.uk/netregs) - environmental legislation

[www.ftse.com/ftse4good/](http://www.ftse.com/ftse4good/)

[www.sustainability-index.com/samindexes/samindexes.html](http://www.sustainability-index.com/samindexes/samindexes.html)

[http://www.ciria.org/environment\\_rp644.htm](http://www.ciria.org/environment_rp644.htm)

[www.berkeleygroup.com](http://www.berkeleygroup.com)

[www.access-ability.org](http://www.access-ability.org)

[www.cpplc.com/portal.asp](http://www.cpplc.com/portal.asp) - Countryside Properties plc

[www.hse.gov.uk/](http://www.hse.gov.uk/) - Health and Safety Executive

[www.aps.org.uk/aclienti.html](http://www.aps.org.uk/aclienti.html) - Association of Planning Supervisors

[www.wessexwater.co.uk/operationscentre/index.html](http://www.wessexwater.co.uk/operationscentre/index.html)

[www.edenproject.com](http://www.edenproject.com)

[www.dmu.ac.uk/info\\_for/visitors.jsp](http://www.dmu.ac.uk/info_for/visitors.jsp) - De Montfort University

[www.buildingforlife.org.uk](http://www.buildingforlife.org.uk)

[www.bioregional.com](http://www.bioregional.com)

[www.portcullis-house.com](http://www.portcullis-house.com)

[www.architecture.com/go/Architecture/Also/Awards\\_324.html](http://www.architecture.com/go/Architecture/Also/Awards_324.html)  
- RIBA

[www.fosterandpartners.com](http://www.fosterandpartners.com)

[www.architecture.com](http://www.architecture.com) – RIBA

[www.ecda.co.uk](http://www.ecda.co.uk) – ECD Architects

[www.dqi.org.uk](http://www.dqi.org.uk) – Design Quality Indicator tool hosted by CIC

[www.cabe.org.uk](http://www.cabe.org.uk) – Commission for Architecture and the Built Environment

[www.theFBnet.com](http://www.theFBnet.com) - The 'Fit Buildings Network'

[www.earthcentre.org.uk](http://www.earthcentre.org.uk)

[www.integerproject.co.uk](http://www.integerproject.co.uk)

[www.welhat.gov.uk](http://www.welhat.gov.uk) - Welwyn Hatfield District Council

[www.rtpi.org.uk](http://www.rtpi.org.uk) Royal Town Planning Institute

[www.odpm.gov.uk](http://www.odpm.gov.uk) – Office of the Deputy Prime Minister

[www.wellbuilt.org.uk](http://www.wellbuilt.org.uk) – A Rethinking Construction site

[www.ciria.org.uk/recycling](http://www.ciria.org.uk/recycling)

[www.wrap.co.uk](http://www.wrap.co.uk) – waste and recycling

[www.absconsulting.uk.com](http://www.absconsulting.uk.com)

[www.wlcf.org.uk](http://www.wlcf.org.uk) – Whole Life Cost Forum

[www.carillionplc.com/strengths/construction](http://www.carillionplc.com/strengths/construction) and

[www.carillionplc.com/strengths/pfi](http://www.carillionplc.com/strengths/pfi)

[www.towerhabitats.org](http://www.towerhabitats.org) – Tower Hamlets site

[www.theFBnet.com](http://www.theFBnet.com)

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**Thank you to everyone who took part in the  
 roadtesting of the Guide**

"The economy is a wholly owned subsidiary of the environment!" it has been said. Our natural desire for quick wins and rapid cash returns is starting to take its toll on our planet and its people. Globally we are starting to hit some physical limits. The good news is that those who recognise this first, avoid going 'into denial', and respond by innovating to face to the challenges of the next century, will naturally become leaders in their field. This is as true for construction as anywhere.

Locally, most of us lead busy (and often unsustainable) lifestyles, in pursuit of economic growth. At home and with our families we may dare to think about the big social and ecological issues, but struggle to reconcile those concerns on Monday morning. Our 20th century lifestyles appear to be working well for us. Or do they?

The 21st century has started with many 'wake up call' alarms: flash floods, heatwaves, oil dependency, droughts. In the words of Terry Wyatt (CIBSE President 2003-04) we need to learn to "Adapt or die". It's that simple. When we start to accept this, we start to change our minds, and open up possibilities for constructing in different and better ways.

Many examples in this book demonstrate that taking those first steps towards sustainability can be both simple and delightful. Gainful not painful. "Doing well, by doing good". And there is more good news:- that all each of us need do is put our own 'house' in order, and the planet will take care of itself!

**Dave Hampton,**  
**CIC SDC Chair and Director of ABS consulting – May 2003**  
*(Dave is currently working hard to put his own house in order! 'Being the change that you wish to see in the world' (Gandhi) is not easy, but it's worth it!)*

### **The Ecology of Commerce - Paul Hawken**

This is, in my view, the first extensive, truly ecological analysis of business; deeply disturbing and yet full of hope. Essential reading for all who care about our planet." – *Fritjof Capra*

### **Mid-course Correction - Ray Anderson**

Ray's book is warm, wise and wonderful. On the topic of planet earth, and whether it has a future if mankind continues on its present path, Ray shines a light on how we can make a radical change and yet still prosper. Doing well by doing good. Spaceship earth will be in pretty safe hands if we all read and heed Ray's book. – *Amazon book review.*

### **Natural Capitalism - Paul Hawken, Amory B. Lovins, L. Hunter Lovins**

'This is smart, strategic thinking... The book presents an extraordinary catalogue of brilliant, profitable and environmentally informed design'  
*The Independent*

### **Biomimicry: Innovation Inspired by Nature - Janine M. Benyus**

Explains how biology suggests ideas for technology, and describes how products have been invented and processes improved by using examples found in nature.

### **The Hitchhiker's Guide to the Galaxy - Douglas Adams**

All of the books in the Hitchhiker's Guide 'Trilogy' are underscored by a deep comprehension of sustainability. (Long before the word got used and abused.) Douglas Adams had the ability to make us comprehend in a holistic way life's boggling complexity and diversity, aggression and frailty. But he made us laugh too and humour is often the best precursor to learning.

# CONSTRUCTING FOR SUSTAINABILITY

CIC is the representative Forum for the professional institutions, consultant business associations and research organisations in the construction industry through it's representation of some 500 000 construction professionals and around 25,000 firms. The Council's principal objective is to serve society by promoting increased efficiency, quality and improved service to clients.

CIC recognises that the protection of the environment and the pursuit of sustainable development are amongst the greatest challenges facing construction clients. This guide will briefly explain some of the thinking behind the principles of Sustainable development and will look at how to adopt those principles throughout the life of your projects from inception to demolition.

**Full members of the Construction Industry Council** · Association for Project Management · Association of Building Engineers · Association of Consultant Architects · Association of Consultant Building Surveyors · Association of Consulting Engineers · Association of Cost Engineers · Association of Planning Supervisors · British Institute of Architectural Technologists · British Institute of Facilities Management · Building Research Establishment · Building Services Research and Information Association · Chartered Institute of Building · Chartered Institution of Building Services Engineers · Construction Industry Research and Information Association · Consultant Quantity Surveyors Association · District Surveyors Association · Ground Forum · Institute of Clerks of Works of Great Britain · Institute of Highways Incorporated Engineers · Institute of Maintenance and Building Management · Institute of Plumbing · Institution of Civil Engineering Surveyors · Institution of Civil Engineers · Institution of Structural Engineers · Landscape Institute · National Federation of Demolition Contractors · National

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