

Sustainable Construction: Clients

Who should read this fact sheet ?

This fact sheet should be read alongside the general sheet 'Sustainable Construction: An Introduction'.

Written for organisations or individuals who are about to procure a new property - a new building or a refurbishment - this fact sheet outlines the aspects of sustainability that should be considered. It applies to clients who procure new properties regularly and to more occasional clients. The mini case studies towards the end of this document provide examples of relevance to both of these groups.

What does sustainable construction mean for construction clients ?

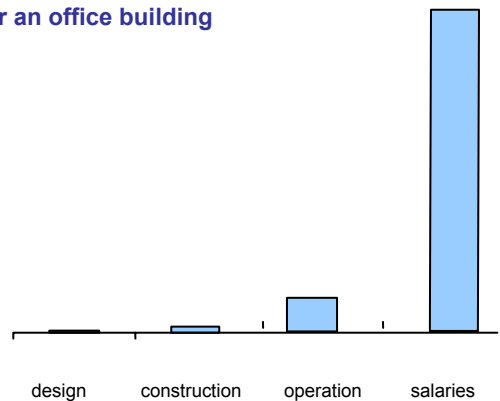
For clients, sustainable construction can mean:

- Lower whole life costs relating to their building. Designing for greater energy efficiency, for example, can bring significant savings through reduced energy bills over the life of the building. The graph opposite shows that design costs are much lower than those for building operation, so a little more spent on design can bring big savings later.
- Better relationships with local communities. Keeping local communities informed during a construction project, and taking account of their needs can bring benefits such as enhanced reputation and a smoother planning process.
- A more efficient construction process. Better dialogue, trust and respect between the client and the different members of the construction team can bring time and economic savings.
- A more pleasant and healthy indoor environment for the building occupants. In commercial buildings, this is likely to improve productivity and staff retention and reduce sick leave; the graph opposite shows that staff are the biggest expense over an office's life so it will pay to invest in a productive working environment.

- Reduced environmental impact through both construction and operation.
- Improved corporate image.

Clients are well placed to play a key role in delivering more sustainable construction, because they are at, or near the top of the construction supply chain. Design teams and construction companies are increasingly being asked for more sustainable buildings by forward-looking clients.

Average proportional whole life costs for an office building



The public sector, which accounts for 40% of UK construction procurement, must meet sustainability procurement targets based on schemes such as BREEAM (BRE Environmental Assessment Method) for all new buildings and major refurbishments. The Housing Corporation (a public body, which funds and regulates social housing provision in England) has introduced a mandatory requirement for new homes to meet a target based on EcoHomes (a version of BREEAM designed specifically to assess homes).

The Design Quality Indicator (DQI) is also a way of developing a high quality design that meets the needs of building users. It helps clients to consider the functionality, build quality and impact of the building and to understand the trade-offs between different options.

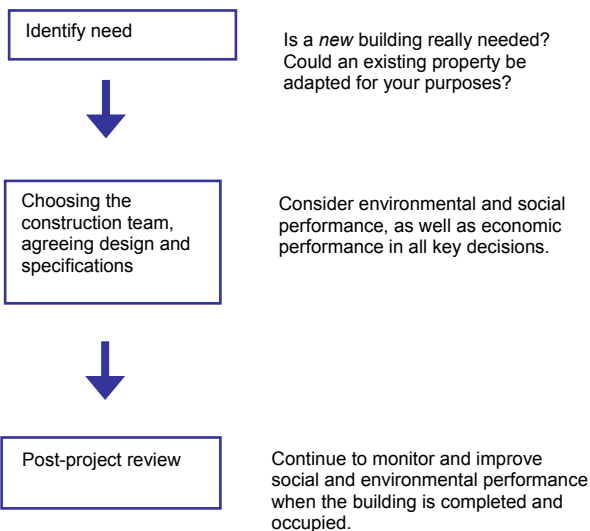
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What do I need to consider ?

There are good business reasons for procuring a more sustainable building, and it is important to consider sustainability from the outset – much less can be achieved if it is added on later and at this stage it can increase capital costs.

Need and feasibility

The first question to consider is whether you really need a new building – is there an existing building that could provide the spaces you need? The options available need to be considered in each individual case. For example the construction of new buildings tends to have much higher environmental costs in terms of energy and material use and waste production than refurbishments, and they tend to have a more negative impact on the local community. On the other hand, a new build may have a lower environmental impact during its operation, if designed with energy efficiency and high internal comfort levels in mind.



Economic sustainability

Think about the whole life costs of the building you are procuring including utility, maintenance and operating costs as well the effect of internal environmental conditions and image on staff satisfaction. Staff costs are typically 40 times the operational costs for an office

building so this can have a significant effect on the overall business costs for an occupier.

‘Direct benefits of good design are reduced maintenance, management and running costs, while indirect benefits are gained through improved satisfaction and productivity of building users.’ Constructing Excellence

It is important to appoint design and construction teams that understand and can respond to your requirements, and who can demonstrate good environmental and social performance. You should also aim to appoint a team with whom you will be able to develop an effective working relationship, and maintain effective dialogue and, ideally, a partnership approach. Choosing the team should not generally be based on capital cost alone. The design team should be incentivised to provide design quality at an optimal cost. Considering the broader range of issues at this stage is likely to result in less time-wasting and delays and reduced risk of environmental liabilities.

When Healthshield procured a new HQ building, they chose a construction team that they could relate to and trust and whose previous work impressed them, rather than selecting the team purely on a cost basis. No problems arose during the project, and any smaller issues were resolved quickly and easily due to a good relationship and shared values along the chain from client to architect to contractor.

Sustainability is an important planning consideration, so thinking about these issues in the early stages of a project can help to gain planning permission or help to speed the process up.

For speculative developers, more flexible design can result in increased letting potential and reduced letting voids. In some cases higher rental values may also be possible.

Environmental sustainability

There are seven key environmental areas to think about, most of which can be considered effectively through the use of BREEAM (see further information section), and through including special conditions in tender documents to prevent pollution and reduce waste for example during construction:

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■ **Energy.** Aim to minimise the energy your building will consume in operation. This can be achieved through an air-tight envelope which has controllable ventilation, good insulation, efficient and responsive heating and lighting controls, appropriate glazing and shading to avoid over heating in summer and natural ventilation instead of air-conditioning. For more details see www.actionenergy.org.uk.

77% of members of the Institute of Directors responding to a recent survey agreed that their business experienced business benefits from implementing policies to reduce emissions of CO₂ or other greenhouse gases.

■ **Water.** Aim to reduce the amount of treated water used in the building. This can be achieved through using water efficient fittings (taps, showers, toilets), control devices (for example auto shut-off taps and proximity detection shut off in toilet areas) and also by including systems such as grey-water recycling or rain water collection for toilet flushing and irrigation, or even black water recycling (for example, using reed bed systems) in the design and a Building Management System (BMS) readable water meter so that consumption can be monitored and targets for improvement set.

Durham County Council required the new **Catchgate primary school** to have a low energy and low water design to save money through it's lifetime. The school is built on a disused colliery spoil heap, providing a sufficiently exposed location for a wind turbine to provide all the energy the school needs. Rain water is collected for toilet flushing, the pump for which is powered by photovoltaic cells.

- **Transport.** Aim to choose an accessible site, to reduce the need for people to use single-occupancy cars (reducing transport-related pollution). Think about locating close to a town or city centre, or transport node such as a train station or bus stop, and including features such as sheltered cycle storage to encourage cycle use.
- **Waste.** Ensure that there is time in the construction programme for demolition to be planned and carried out to enable maximum reuse and recycling of materials and components. This is likely to be cost-neutral or even bring costs savings. Ask for waste reduction to be built in to the design, through approaches such as using standardised components. Ask for space to be provided for recycling bins in the finished building. For more information see www.wrap.org.uk.
- **Materials.** Aim to minimise the amount of non-renewable raw materials used in construction. This can be achieved through reuse or recycling of materials (aim to use local materials where possible), or through choosing renewable materials as much as possible (for example wood from sustainably managed sources – see www.fsc-uk.info).
- **Biodiversity.** Select the site and plan the development so as to minimise disruption to sensitive areas. Consider employing an ecological consultant if constructing on land with some ecological value. Considering biodiversity can help create better relations with the local community. For more information, see www.ukbap.org.uk.
- **Internal environment** Ask for a pleasant and healthy internal environment. Consider temperature, noise, air quality, access to daylight etc. and occupant control over these.

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Social sustainability

There are two key groups to think about:

- **Building occupants.** In addition to the internal environmental issue above, the layout of the building, the amount of space, privacy and security are also issues of importance to building occupants, as is the overall image and appearance of the space. These issues are all likely to affect people's well-being, motivation and productivity.
A large increase in retail sales can be brought about by increasing natural daylighting in stores (some studies quote up to 40% improvements)¹.
In business premises, any major changes to people's working environment will impact on the way they work.
If staff are involved at an early stage they are likely to be more positive about the change and can provide useful input.
- **Local communities.** Any building work can cause problems of noise, dust and dirt, and it can be a real benefit to ensure the local community is on your side before any disputes occur. Additional traffic, work-related noise or impacts on local wildlife can also be of concern to local communities and need to be considered at an early stage.

Tesco consulted the local community extensively to monitor attitudes to the construction of a new supermarket in Beverley, East Yorkshire, and kept them informed on the work taking place. They also used the 'best practice guide to working with the community' (see www.cbpp.org.uk) to educate site workers on their impact on local residents. Their approach saved time and money, as it reduced the number of complaints and improved PR. For more information visit: www.rethinkingconstruction.org.

Aim to involve these groups (and others that you identify as important) in consultation at an early stage in the procurement of your new building.

This could involve holding meetings, focus groups, or conducting a survey to gauge their views on possible options.

Examples of clients who procured more sustainable buildings

¹ California Board for Energy Efficiency, 1999

Creekside Centre, Deptford

Creekside Education Trust is an independent education charity. The Creekside Education Centre was built on a reclaimed brownfield site, following the regeneration of Deptford Creek. The Centre is now visited by a range of users, from students studying urban wildlife to engineers.

Aims

- To have a low 'ecological footprint'.
- To meet the needs of the Centre's users and to have a flexible design.
- To create habitat for local plants and wildlife, including the nationally rare bird the black redstart.

Benefits

- Passive solar gain was maximised through a southerly orientation of the building. This, plus thick wool insulation (a natural and sustainable material) and double glazing, reduced heating costs.
- Locally sourced recycled materials were used (including railway sleepers and gravel landscaping provided by a crusher on site), which saved money on purchasing and disposal.
- Rainwater collected from the roof is used to flush toilets, reducing treated water consumption.
- The creek area has been changed from an area disliked by local communities to one that they can use and learn in.

For more information contact:

T 0208 692 9922 E creeksidecentre@yahoo.co.uk

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Arup Associates Campus, Midlands

Arup Associates designed the new centre for their own Midlands operations, bringing together staff from Coventry and Birmingham offices into one location, and also those of owner, BVP Developments.

Aims

- To design an innovative and sustainable office, with a natural environment, achieved through opening windows, maximum use of daylight, and using air-conditioning only where absolutely necessary.
- To build a low-energy office that was adaptable, with a long life.
- To dissolve departmental barriers, encourage staff interaction and win employee buy-in, particularly since staff did not want to move location.

Benefits

- Arup is on course to achieve its target of a 25% reduction in use of electricity and gas compared with typical modern air-conditioned offices.
- Staff interaction has increased due to open-plan office space, conference areas and large café.
- The building has attracted positive publicity for Arup and the business park as a whole.

For more information:

See CBP Case Study 187 (www.cbpp.org.uk), or contact Peter Warburton, Arup Associates, T 020 7636 1531.

Sources of further information

Clientzone

Resource for clients, including a list of client advisors, objectives and actions for each stage of the construction process, and sustainability case studies: www.cbpp.org.uk/clientzone

Constructing for Sustainability: A Basic Guide for clients and their professional advisors, Construction Industry Council, 2003

A useful booklet summarising the key aims and objectives of sustainability. Priced publication, available from CIC, T 0207 399 7400, E cic@cic.org.uk

BREEAM (BRE Environmental Assessment Method)

A voluntary scheme for assessing and certifying the environmental performance of buildings. Clients can use BREEAM to specify the environmental sustainability performance of their buildings:

www.breeam.org

Construction Industry Key Performance Indicators, DTI (published annually)

Indicators and benchmarks for social, environmental and economic aspects of construction, against which clients can set targets for the construction team:

www.kpizone.com

Design Quality Indicators

Allow clients to set a framework to consider the quality of the building: www.dqi.org.uk.

Demonstrations of Sustainability, Constructing Excellence, 2003

A report summarising the sustainability issues addressed by Rethinking Construction demonstration projects: www.cbpp.org.uk

CIRIA and BRE

have both carried out work on corporate social responsibility and property clients: www.ciria.org.uk; www.bre.co.uk

Action Energy

A government-funded programme to help organisations save money through energy saving: www.actionenergy.org.uk.

Sustainable Buildings: benefits for occupiers, BRE Information Paper IP13/03 Part 1. AND Sustainable Buildings: benefits for investors and developers, BRE Information Paper IP13/03,

Based on case studies, these papers outline the benefits of producing more sustainable buildings. They form part of a group of four papers: www.brebookshop.com.

This fact sheet was produced for Constructing Excellence by the Centre for Sustainable Construction, BRE, Garston, Watford, WD25 9XX, www.bre.co.uk/sustainable