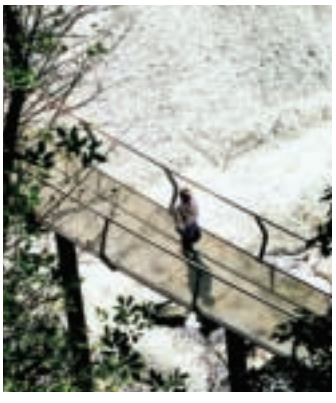

Getting Value for Money from Construction Projects through Design

How Auditors Can Help

Guidelines to help auditors take account of good design in public sector built environment projects

NAO
NATIONAL AUDIT OFFICE

The ultimate aim is not only to build good buildings, but also to ensure that the right buildings are built to meet the requirements of all stakeholders, particularly the end users.

Design represents a minute proportion of the lifetime cost of a building – less than one percent – but done well it has a disproportionate impact on how well the building and its surroundings perform.

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The Prime Minister's Better Public Building Award rewards excellence both in design and procurement and is sponsored jointly by CABE and OGC. It is open to projects of any size, commissioned by or on behalf of the public sector.

www.betterpublicbuildings.gov.uk

FOREWORD

The design of public buildings is not just a technical issue or a matter of aesthetics. Good design has a key role to play in improving the quality of services provided by the public sector. A well designed building can, for example, help patients to recover from illness more quickly or encourage better learning among schoolchildren. It can also benefit the service deliverers who work within it, by contributing to staff recruitment, retention and motivation. In short, good design can increase the value for money that the building provides across its whole life.

Auditors are frequently called upon to make judgments on the quality of public construction projects at various stages of the procurement process. When doing so, it is important that they consider wider issues than just the initial capital cost. Value for money in construction involves completing a project to time, cost and a level of quality that meets the need. A good project will continue to provide value for money and meet user needs throughout its lifetime, and will contribute to the environment in which it is located with a wide range of social and economic benefits. An early investment in design quality can help deliver these benefits.

This guide has been developed by the National Audit Office (NAO), the Commission for Architecture and the Built Environment (CABE), and the Office of Government Commerce (OGC), in association with the Audit Commission. Its purpose is to provide auditors with an understanding of the value of good design in construction, and a firm basis for examining whether good design has been achieved in a particular project. While not meant to replace existing audit practices, it includes a set of simple but searching questions to evaluate construction projects, and suggests the types of evidence that will help to answer those questions.

We therefore hope that the audit community will find this guide useful, and that it will contribute to the design of better buildings across the public sector.

Sir John Bourn, Comptroller & Auditor General
Sir Stuart Lipton, Chairman, CABE
Sir Peter Gershon, Chief Executive, OGC
James Strachan, Chairman, Audit Commission

"I am determined that good design should not be confined to high profile buildings in the big cities: all of the users of public services, wherever they are, should be able to benefit from good design."

Better Public Buildings –
Rt Hon Tony Blair MP,
Prime Minister

INTRODUCTION

This publication is primarily intended to guide internal and external auditors to making sound judgements when auditing public sector construction projects at all stages of the procurement process. For the purpose of this guide 'construction projects' is taken to mean all public sector building projects including new build, refurbishment and maintenance of infrastructure, individual buildings and public open space.

WHOLE-LIFE VALUE FOR MONEY FROM CONSTRUCTION

The guide's starting point is that lowest capital cost is not a reliable measure of value for money, since it takes no account of how well buildings perform. Government policy and approach to achieving whole-life value for money from centrally funded construction is encapsulated in the *Achieving Excellence in Construction* initiative. The Office of Government Commerce (OGC) is driving this initiative and all central government departments have agreed to adhere to its principles in construction projects carried out by themselves, or funded through their agencies and NDPBs.

When auditing construction projects to assess their value for money, auditors should check that the *Achieving Excellence* principles are being followed. Departments have agreed collectively to two strategic targets as measures for their success in achieving whole-life value for money. These can be found at Appendix C. OGC has suggested a range of Areas for Action that departments should consider for inclusion in their Action Plans for implementing *Achieving Excellence* and against which they can judge their compliance level. Auditors may consider these as a starting point.

VALUE FOR MONEY AND DESIGN

As has been repeatedly acknowledged by both HM Treasury and the NAO, sound and creative design is an essential ingredient in achieving value for money. Value for money in construction is about more than delivering a project to time and cost. A good building project must also contribute to the environment in which it is located, deliver a range of wider social and economic benefits and be adaptable to accommodate future uses.

The ultimate aim is to deliver construction projects that meet the requirements of the business and **all** stakeholders, particularly the end users. An early investment in design quality can make service delivery significantly more efficient and will enhance the working environment for all those who use our public buildings.

Building on publications such as OGC's *Achieving Excellence in Construction Procurement Guides*, the joint CABE/OGC *Improving Standards of Design in the Procurement of Public Buildings*, HM Government's *Better Public Buildings*, a host of other CABE, NAO and OGC publications (see Appendix F), the latest edition of *The Green Book* and tools such as the Construction Industry Council's *Design Quality Indicators*, this guide reflects an increasing awareness of the benefits delivered by well designed construction projects and the need to consider whole-life values.

WHY DESIGN QUALITY IS IMPORTANT AND HOW AUDITORS CAN HELP

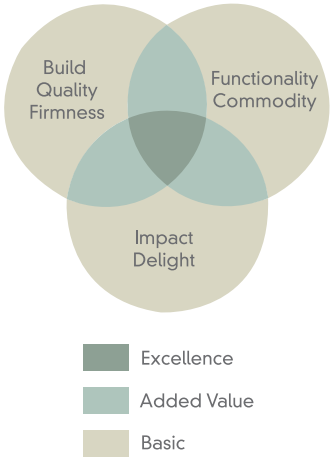
Good design is not primarily a question of style and taste. It is the adherence to a set of time honoured, objective principles that determine whether or not a building works well for all users and for the community. Design encompasses functional efficiency, structural integrity, sustainability, lifetime costing and flexibility as well as responsiveness to the site and its setting.

Good design can be summarised as a mix of the following attributes:

- **Functionality in use:** Does it optimise the operational cost of core services and the productivity of staff?
- **Build quality:** Is the building built to last and easy to maintain?
- **Efficiency and sustainability:** Is the building designed in a way that will allow it to be completed on time, to budget and to specification? Is the building environmentally efficient, in terms of where it is located, how it is constructed and how it will be used and disposed of?
- **Designing in context:** Is the building respectful of its context, strengthening the identity of the neighbourhood in its landscape?
- **Impact:** The procurer may have architectural requirements that will form an essential element of the design process. These could include distinguished architecture, or the need for a building to harmonise with existing buildings.

"It is crucial for auditors to recognise that good design can significantly enhance long-term value for money in construction projects."

Sir John Bourn,
Comptroller and Auditor General



The more overlap there is between these three quality fields the higher the quality.

"Design represents a minute proportion of the lifetime cost of a building – less than one percent – but done well it has a disproportionate impact on how well the building and its surroundings perform."

Sir Stuart Lipton,
CABE Chairman (2001)

Design Quality Indicators

The Design Quality Indicator (DQI) is an online tool that helps define and evaluate design. It is based on the three aspects of design quality:

1. Impact – the building's ability to create a sense of place and have a positive effect on the local community and environment.
2. Build Quality – the engineering performance of the building, which includes structural stability and the integration, safety and robustness of the systems, finishes and fittings.
3. Functionality – the arrangement, quality and interrelationship of spaces and how the building is designed to be useful to all.

Clients, designers and stakeholders rate these aspects of a project on a simple six point scale by completing a short questionnaire. The DQI can be used to help set design quality as a project progresses from a brief to construction and use. The process can help communicate and share values, clarify design strengths and weaknesses and identify opportunities for improvement.

Good design is fundamental to achieving high quality public buildings. HM Treasury and the NAO agree that good design helps generate value to the business and taxpayer by creating environments that support public service delivery and by producing buildings and spaces of lasting civic value. Good design can also contribute to staff recruitment, retention and motivation and increase value for money across the life of the asset.

Auditors should consider the whole-life value generated to the business and taxpayer and not simply focus on minimising initial capital costs. This impact on service delivery can be seen clearly if we breakdown a building's costs. Over the lifetime of a building, the construction costs are unlikely to be more than 2-3% of total costs, but the costs of running a public service will often constitute 85% of the total. On the same scale, the design costs are likely to be 0.3-0.5% of the whole-life costs, and yet it is through the design process that the largest impact can be made on the 85%[1].

Delivering value means maximising the benefits delivered by a project by satisfying or exceeding the needs of the various stakeholders whilst simultaneously minimising the use of resources. Value can be described as the function of the relationship between the 'satisfaction of needs' (business benefits and requirements) and the resources needed to deliver them i.e. Value = Benefits/Resources.

1. *Improving Standards of Design in the Procurement of Public Buildings (CABE/OGC)*

The Value of Good Design

How buildings and spaces create economic and social value

This report, published by CABE, draws together key research from the UK and abroad to demonstrate how investment in design quality impacts on outcomes in the areas of:

- Healthcare
- Housing
- Business
- Educational environments
- Civic pride and cultural activity
- Crime prevention

One way of describing the factors critical to the delivery of value through the project is through the use of **value drivers**. The details of these and their relative importance will vary from project to project depending on the benefits required from the building. The degree to which the design satisfies each of the value drivers is a measure of the quality of the building design. The better the quality of design, the higher will be the satisfaction of the value drivers.

Auditors need to be able to assess how well the project value drivers are satisfied in order for them to assess the value delivered by the project. To enable them to do so, this guide sets out key questions for each of the main value drivers.

FRAMEWORK FOR ASSESSING QUALITY DESIGN

How to use this guide

This guide should be used as a contribution to the framework around which audits are conducted. It is not meant to replace existing auditing practices, nor is it exhaustive. It will not, therefore, supplant or supersede an auditor's experience. The guide includes some key questions to explore the extent to which 'value for money' is delivered. Auditors should use the guide to help them direct their analysis towards subject areas that are important to a particular project, using the guide's contents to inform further questioning, should this be needed.

The guide contains four tools to help auditors

1. **A description of six value drivers** that, together, will deliver value through good design.
2. **A list of *key questions* for each value driver.** The questions will stimulate a response to help the auditor assess whether each of the value drivers has been considered and how well it has been met. The auditor should use these questions as a starting point. If not fully satisfied by the responses, the auditor should ask supplementary questions, drawn from his/her experience.
3. **Case studies** highlighting projects where some or all of the value drivers have been met.
4. **A Value Assessment Tool** (Appendix A) that helps auditors to assess the relative importance of each value driver to a particular project and the extent to which each value driver has been met. The tool provides a weighted assessment of value for money overall as well as the performance against each individual value driver. A worked example of the assessment tool demonstrates how it should be used. It should be stressed, however, that the tool represents just one way of assessing performance against the value drivers, and should not be seen as a mandatory approach.

VALUE DRIVERS FOR GOOD DESIGN

The following value drivers cover the benefits of good design. These are applicable at all stages of the procurement process, from initial business case assessment to readiness for service and post-occupancy. They will help auditors assess the most appropriate balance between benefits and resources and should be seen to complement existing Government initiatives and policies such as *Achieving Excellence in Construction* and the *Better Public Building Initiative*.

In order to assess the degree to which each value driver is satisfied, it is necessary to have appropriate metrics in place. Some metrics are easier to quantify than others. For example a value driver relating to financial performance is easy to quantify using a metric such as "Net Present Value". Non-monetary value drivers, such as 'Impact positively on the locality', rely on more subjectively assessed metrics such as surveys. Conducting a survey over a large sample can confer a degree of objective confidence in the outcome.

The value drivers and some suggested metrics are outlined below. Taken together, they may be used to balance the financial and functional requirements of a building to deliver best value for money. They are listed in no order of importance.

Value Driver and Short Description	Suggested Metrics
1. **Maximise business effectiveness** Describes how the facility delivers the benefits required by the business case. This includes issues relating to staff productivity, unit costs of production and ease of working. It also includes creating environments that employees and users enjoy and that encourage effective business processes.	• Staff satisfaction • Operating costs per head • Post-occupancy analysis • Staff turnover • Churn costs • Sickness absence • Disability Access Reviews
2. **Ensure effective project management and delivery** Relates to the management processes used, and the selection of an integrated team working throughout the supply chain.	• Compliance with *Achieving Excellence* targets • Construction Industry Standard KPIs • OGC Best Practice Project Management Guidelines • OGC Gateway Review
3. **Achieve the required financial performance** Defined by the business case for the project. It includes achieving the optimum balance between capital costs, a building's operating and maintenance costs and residual whole-life value.	• Net Present Value • Internal Rate of Return • Whole-life Cost
4. **Impact positively on the locality** Describes issues that relate to the building's aesthetics, the way it conveys the organisation's corporate image, and the building's relationship to its context.	• Post Occupancy Evaluation • Design awards • Design Quality Indicator • Response of planning authority

Value Driver and Short Description	Suggested Metrics
5. **Minimise building operation and maintenance costs, and environmental impact** Issues to do with maintaining, operating and cleaning the facility once it is in use. This also includes minimising impact on the environment and environmental sustainability.	• Whole-Life Cost • Facilities Management Estimates • BREEAM assessment or equivalent • Sustainability index • Construction Excellence Sustainability KPIs (Environment)
6. **Comply with third party requirements** Describes statutory and other requirements including planning consent. Covers all aspects of Health and Safety both during and after construction, and addresses adherence to Central Government guidance.	• Public survey • Planning approval • Industry KPIs • Accident rates • Health & Safety statistics

1. MAXIMISE BUSINESS EFFECTIVENESS

Most buildings are built to enable people to conduct specific activities within them. The type of activity undertaken can vary hugely but the building should allow it to be undertaken efficiently, economically and effectively.

Good design should ensure that the building is readily accessible by all who use it, and that the inter-relationship of spaces encourages efficient use. The building should be easily adaptable for future uses and be flexible to accommodate short, medium and long-term changes.

While the costs of owning and operating a building will vary, research has shown that they can be expressed by an approximate ratio of 1:5:200[2], where 1 represents the cost of construction; 5 the cost of building operation and maintenance (e.g. lifetime costs of heating and lighting); and 200 the business operating costs (e.g. staff and service delivery costs). With business operating costs outweighing construction costs by as much as 200 times this value driver has a significant impact on whether the building provides long-term value for money.

- The building's suitability for the activities to be conducted within it will include a consideration of the functions it accommodates and the interrelationships between different functional zones and spaces. Circulation spaces should be places in their own right allowing efficient circulation within an uplifting environment. Increasingly there will be spaces in buildings that may be part of the circulation and / or be multi-functional. Evaluating the efficiency that these spaces provide for and how they help the users should be considered.
- The building should provide good access for all who use it. The layout should be legible with clear signage so that it is easy to navigate around the building. The external landscape should contribute to the ease of accessibility. There should be good access to public transport and/or sufficient parking, depending upon the location of the building and facilities for the delivery of goods, and disposal of waste should be safe and secure.

2. *Evans R, Haryott R, Haste N & Jones A, 'The long-term costs of owning and using buildings', p.5*

- The building should provide a comfortable, healthy environment. Factors affecting the internal environment include the temperature, air quality, acoustics, space and storage. There should be a good balance of daylight and artificial lighting reflecting the different user requirements. The building systems should be easy to operate by those who are authorised to do so and be robust and efficient.
- The building should easily accommodate any changes in activity that are likely to occur both through its use over the course of a day, week or year, but also into the future as user requirements change. This will include short and medium term changes as well as possible expansion or subdivision.
- Facilities management techniques should be in place to monitor building effectiveness to allow for continuous improvement to meet changing needs.

Key Questions

1. Will the building satisfy the operational requirements of the brief? Will it work well? Do spaces in the building have a rationale for their use and design and contribute to the users' requirements, helping them be efficient?
2. Will the building be legible and easy to navigate?
3. Will the design aim to enhance how staff feel and behave, and improve morale and quality of life?
4. Will the building be easily adaptable to meet the future needs of users including expansion and change of use?
5. Are the vision and objectives for the design of the building clearly set out to enable effectiveness to be maintained throughout its life?

Possible metrics	Examples of value metrics
• Unit operating costs • Productivity per employee • Revenue per unit area • Footfall (number of visitors) • Number of complaints • Satisfaction Surveys • Churn costs per person • Days lost through sick leave • Recruitment and exit surveys • Disability Access Reviews • Utilisation surveys	• Net operating cost per unit/employee • Output/revenue per employee • Number of staff changes per year • Visitor/employee ratios • Speed of transactions • DQI • Revenue generated • % staff working flexibly • % staff in open plan • Ratio of staff numbers to desks • Space utilisation ratio • Productivity rating eg. using Office Productivity Network Survey

CLIENT	Exchequer Partnership
DESIGNER	Foster & Partners
COST	£141 million
PROCUREMENT	P F I
FURTHER DETAILS	www.betterpublicbuildings.gov.uk

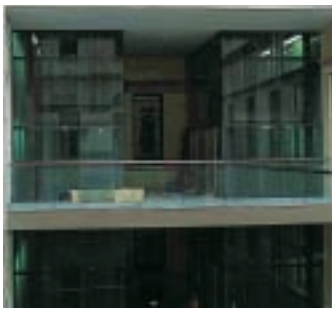
CASE STUDY 1. MAXIMISE BUSINESS EFFECTIVENESS

HM Treasury, London

Refurbishment of the HM Treasury building has brought a new lease of life to what was an under-utilised Grade II* listed building, reversing a period of progressive deterioration and unsympathetic, piecemeal additions. The new accommodation brings all Treasury staff together in one building for the first time in over 50 years.

The design challenge for the architects was to re-model the building to make use of the myriad corridors, unused light wells, staircases and unproductive spaces, whilst remaining sympathetic to the heritage constraints. The result is a flexible, modern office space that delivers significant environmental gains through the use of natural ventilation and increased amounts of daylight.

The refurbishment, which involved the removal of over seven miles of internal walls, has provided an extra 25 per cent of useable space for over 1,200 Treasury and Central Support staff. Views through the building have been improved thanks to the refurbishment and strengthening of 1750 windows and removal of bomb-blast nets. Eight unused light-wells have been brought into use for communal facilities by installation of transparent roofs. A large rectangular courtyard at the centre of the building has been modestly and sympathetically landscaped with trees and water features to create an internal garden area that can be used by staff and visitors.



Creating Excellent Buildings: A Guide for Clients

CABE's comprehensive guide helps clients through the development process. It identifies ten keys to being a successful client:

1. Provide strong client leadership
2. Give enough time at the right time
3. Learn from your own and other successful projects
4. Develop and communicate a clear brief
5. Make a realistic financial commitment from the outset
6. Adopt integrated processes
7. Find the right people for the job
8. Respond and contribute to the context
9. Commit to sustainability
10. Sign off all key stages

2. ENSURE EFFECTIVE PROJECT MANAGEMENT AND DELIVERY

There are opportunities to maximise value and minimise waste at every stage of the construction and procurement process, from the minute that the need for a building is identified to when it is ready for use. Effective management by an integrated project team is essential to achieving this value.

- All Government funded projects should implement the *Achieving Excellence in Construction* principles. Departments, their Agencies and NDPBs should be able to demonstrate compliance, such as by evidence of the use of OGC's suggested Action Areas to monitor progress.
- Non-expert clients should ensure that they draw on the services of an Independent Client Adviser in the very early stages of the project.
- The project team should be selected because they have the necessary technical competence to produce a building that is well designed and constructed. They should not be selected on the basis of cost alone.
- The project team should exhibit a high level of integration, coordination and communication to cover all aspects of a complex construction project.
- The project team should be involved from the earliest stages of the project.
- In addition to working well together, the project teams should communicate well with all stakeholders. They should involve users, contractors and other members of the supply chain at appropriate times throughout the design and construction of the project to benefit from their expertise.
- The project team should follow recommended best practice for the construction industry.
- The project team should develop a project execution plan, describing what is required from the building (the brief or output specification), the organisation of the project team and the plan for executing the project.
- The effectiveness of processes should be assessed using industry standard key performance indicators.
- Gateway reviews should be undertaken at the relevant stages of the project.

Key Questions

1. Is the project team using *Achieving Excellence in Construction* procurement guidance to deliver the project?
2. Is the project team:
   - An integrated project team that has been selected on the basis of their competence as well as cost;
   - Sufficiently skilled and resourced to deliver the project successfully;
   - Responsible and accountable for their design inputs?
3. Does the project team demonstrate a commitment to continuous improvement?
4. Has sufficient time been allowed to ensure that the design meets user requirements, that design options and iterations were fully tested and that the client signed off the design at key stages? Was the design and construction process thoroughly planned?
5. Is there effective communication with stakeholders? Has the project team consulted with users, outside bodies, contractors and members of the supply chain?
6. Has the design, construction and delivery programme been complemented by a programme of engagement with users to help them adapt and adopt practices to ensure they get the most value out of the new facility? Has the process helped ensure positive cultural change and development for the client organisation?
7. Has the project team considered ease of construction, use of sustainable materials, prefabrication and standardisation of elements or processes to achieve better whole-life value?
8. Is the project being procured using one of the three preferred procurement routes?
9. Does the project team regularly measure its effectiveness in terms of process and outcomes?
10. Are Gateway Reviews being applied to the relevant stages of the project?
11. Does the design team apply construction industry best practice?
12. Is there a Project Execution Plan (PEP) describing the key features and organisation of the project? Does the PEP include:
    - The project objectives;
    - The brief or output specification;
    - A project directory;
    - A communication plan;
    - Lines of decision-making;
    - A logic-linked programme?
13. Have all risks been identified and assessed? Is risk being effectively managed? Is risk allocated to appropriate parties?
14. Was the design reviewed by the client and third parties at key stages to test that quality was being offered and delivered?

OGC's guidance suite builds on departments' experience of implementing *Achieving Excellence* and reflects recent developments in construction procurement. It consists of three core and eight supporting guides together with two high level briefings.

Possible metrics

- Good project management processes
- Compliance with *Improving Standards of Design* recommendations (see Appendix D)

Examples of value metrics

- *Achieving Excellence* Action Areas
- *Achieving Excellence* strategic targets
- Construction industry standard key performance indicators
- Successful Gateway Reviews

CLIENT	Tamar Bridge and Torpoint Ferry Joint Committee, Plymouth City & Cornwall County Councils
DESIGNER	Hyder Consulting Ltd
PROJECT VALUE	£35 million
PROCUREMENT	Quality and Price Evaluation, Partnering, NEC Target Price Contract
FURTHER DETAILS	www.betterpublicbuildings.gov.uk

CASE STUDY 2. ENSURE EFFECTIVE PROJECT MANAGEMENT AND DELIVERY

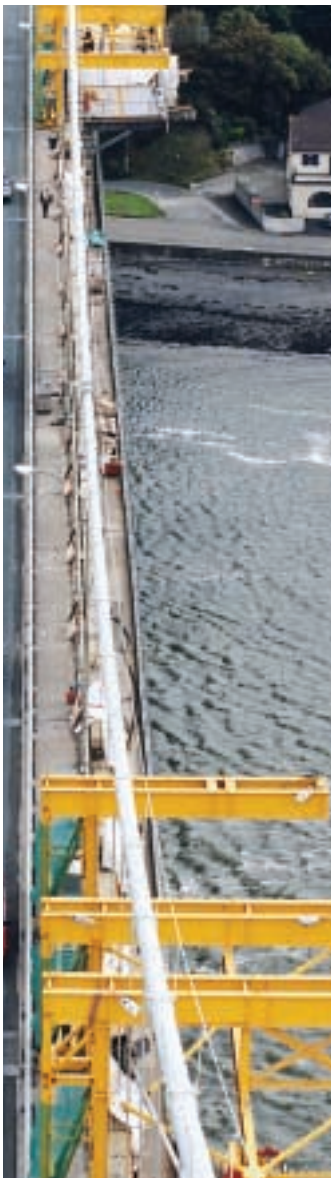
Tamar Bridge, Plymouth

This project, simultaneously strengthening and widening a major suspension bridge while the bridge remained open to 40,000 vehicles per day, was a world first that wouldn't have been achieved without the client, designer and contractor acting together in partnership as a single Integrated Project Team.

Temporary lanes were erected alongside the existing deck while it was replaced. These eventually became two permanent lanes, one providing a local traffic lane, the other a combined cycle path and pedestrian route. An alternative proposal – to construct a second river crossing – would have cost in excess of £300 million.

As well as being technically advanced, this project was contractually innovative in its approach to procurement. From its inception it was conceived as a partnership, with risk identification and sharing for greater certainty of completed cost. Thus the designers, principal contractor and main civil sub-contractor were involved in:

- Design development – ensuring an innovative, economic and buildable design
- Development of the target price
- Refinement of the detailed design



3. ACHIEVE THE REQUIRED FINANCIAL PERFORMANCE

This value driver is about the affordability of the building and how to optimise costs and benefits to the organisation that uses it. The budgeted cost figure should accurately reflect the optimum balance between the required functionality and the cost of providing it.

- Buildings cost money. To justify their construction the business case should identify how much the organisation can afford to invest in the construction, operation, maintenance and eventual disposal of the building in present value terms. It should also account for how the design will impact on the business effectiveness issues considered in value driver 1.
- Regardless of cost, there is a fundamental requirement that the stated design of the building must deliver the functionality required of it. The details of this functionality are described within the other value drivers.
- Buildings that cost more to build and/or run than is budgeted will adversely affect the user business. The budgets for both capital and whole-life costs, should be stated in the business case and be sustainable and affordable over the life of the asset.
- The investment appraisal should address capital and whole-life costs. It should address the various options available for delivering the anticipated benefits and state the whole-life cost of each option.
- Auditors should note that the lowest cost option may not provide the best value for money. The whole-life value of wider benefits generated by an investment in good design may outweigh small differences in initial capital and whole-life costs.

Key Questions

1. Is there a robust business case with a clear and agreed budget that defines the capital and whole-life costs of the building? Are whole-life cost estimates realistic and based on reliable evidence?
2. Is the capital cost estimate affordable and within budget? Are all resources and internal funds in place?
3. Are the building operating and maintenance cost estimates within the budget?
4. Have the integrated project team defined the balance between capital spend and building operating and maintenance costs?
5. Is there a clear brief expressed in the required output terms?
6. Is there a clear statement of the economic and social values to which the project should respond?
7. Does the investment appraisal address various options for delivering the required benefits?
8. Has the decision to proceed taken into account the benefits of good design and whole-life values?
9. Does it compare itself to cost and quality benchmarks?
10. Was the project completed within budget and programme?

Possible metrics

Appropriate financial metrics are:

- Capital Cost
- Building operating and maintenance cost
- Net Present Value
- Internal Rate of Return
- Payback
- Robust business case

Examples of value metrics

- Cost per desk/employee (benchmarked against appropriate comparables)
- Capital Cost (benchmarked against appropriate comparables)
- Net useable area to gross area ratio
- £ per unit area or £ per unit of functional area
- Net Present Value of building
- Whole-life cost of building operation and maintenance

CLIENT	Defence Estates
DESIGNER	Percy Thomas
COST	£40 million
PROCUREMENT	Prime Contract

CASE STUDY 3. ACHIEVE THE REQUIRED FINANCIAL PERFORMANCE

Defence Logistics Organisation Headquarters, Andover North

The first major capital Prime Contract to be let by Defence Estates, this £40 million development accommodates the Headquarters of the Defence Logistics Organisation (DLO). The 30 acre site contains:

- An Office Building for 780 staff with 90% open plan office space
- A Warrant Officers' and Sergeants' Mess
- A Technical Building with 11 vehicle bays with an over-head gantry crane for testing anything from a Landrover to Main Battle Tank
- A Crèche for 40 pre-school children.

The site contained many mature trees, all of which have been retained and will be complemented by an extensive landscaping scheme together with a new lake and wildlife garden. The design meets strict energy targets with the Office, Mess and Technical Buildings achieving a BREEAM rating of 'Excellent'.

At the very beginning of the project the core contractors and client developed and agreed a project charter setting out the key objectives for the project. This easily understood document was backed up by an Integrated Project Agreement, detailing working relationships and empowering a joint steering committee to oversee project progress. This process allowed risk and reward to be shared by client, designers and constructors alike, an arrangement reinforced by the fact that the core contractors would receive a single profit, while a project bank account ensured that all parties, regardless of size, were paid at the same time. The commission was awarded in January 2001 and the close involvement of the core contractors meant that demolition and construction took just 15 months.

4. IMPACT POSITIVELY ON THE LOCALITY

This value driver describes the impact of the building on the surrounding area and the people who use or visit it. Good quality architecture and urban design creates places with distinctive character, streets and public spaces that are safe, accessible, pleasant to use and inspiring. A well designed building will also make a positive social and economic contribution to its immediate neighbourhood and improve communal facilities.

In some cases, positive impact may arise from the very act of rehabilitating a building that had fallen into disrepair, thus demonstrating to the local community that they are worth the effort and investment. It is therefore important to identify the previous use of the building or space, and to take account of the broader benefits to the community.

- Projects should seek to create places, rather than isolated buildings. They should respond to its context with the landscape surrounding it positively contributing to the neighbourhood. The joint CABE/DTLR publication, *By Design*, states the objectives of urban design as being:
  - Character: to promote character in townscape and landscape by responding to and reinforcing locally distinctive patterns of development, landscape and culture.
  - Continuity and enclosure: to promote the continuity of street frontages and the enclosure of space by development, which clearly defines private and public areas.
  - Quality of the public realm: to promote public spaces and routes that are attractive, safe, uncluttered and work effectively for all in society, including disabled and elderly people.
  - Ease of movement: to promote accessibility and local permeability by making places that connect with each other and are easy to move through, putting people before traffic and integrating land uses and transport.
  - Legibility: to promote legibility through development that provides recognisable routes, intersections and landmarks that people find their way around.
  - Adaptability: to promote adaptability through development that can respond to changing social, technological and economic conditions.
  - Diversity: to promote diversity and choice through more compatible developments and uses that work together to create viable places that respond to local needs.
- The building's character comprises such issues as the way it looks, whether it

pleases the senses and the mind and whether it provides a stimulating visual and sensory environment that staff, users and visitors enjoy. The building may be widely acclaimed for its quality, because it provokes thought and/or gives a positive impression. The building should demonstrate that there is a clear vision behind its design.

- There should be a clarity of composition of the building in terms of form, materials used and the quality of the detailing. It should be well detailed and there should be an appropriate use of colour and texture.
- Internally the building should be pleasing to the senses and generate an enjoyable experience. The natural and artificial light in the building should be of high quality, creating patterns that enhance its use. It should capitalise on the views available from its location. Textures and sounds within and around the building should be interesting and help create a pleasing sensory impression of the space.
- Many buildings are designed to convey the occupier's image to the wider public and users alike. It should reflect the occupier's organisational branding, culture and values. The form and general building composition should reflect the purpose for which it is built.
- Many buildings' design and construction may be innovative through the use of new technical solutions, pioneering use of materials or new management techniques. The level of innovation may enhance the image of the organisation who sponsored the building through public recognition.

Key Questions

1. Does the building look good and will it be a positive environment within which to work?
2. Are the plans, sections, elevations and details of the building visibly related to each other and to underlying design ideas?
3. Does the building deliver social and economic benefits for the surrounding community?
4. Does the building enhance the neighbourhood and its environment?
5. Does the building make a generous contribution to the public realm, to benefit people in general as well as the building user?
6. Does the building project the image that the occupier/users wish to convey?
7. Is the building design and construction of high quality, including the detailing?
8. Can one imagine the building becoming a cherished part of its setting?

Possible Metrics

- Public or private survey results
- Views of local planning authority
- Views of CABE Design Review Committee
- Design skills of delivery team

Examples of Value Metrics

- The building has won design awards
- Design Quality Indicator

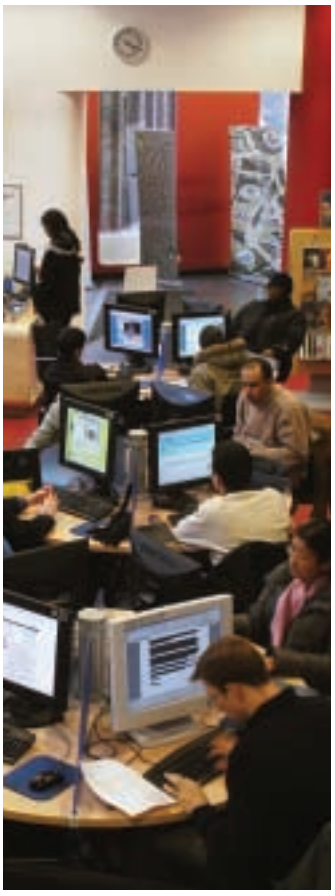
CLIENT	Tower Hamlets Borough Council
DESIGNER	Bisset Adams
COST	£2 million
PROCUREMENT	Design and Build
FURTHER DETAILS	Better Public Libraries, CABE and Re:source www.ideastore.co.uk

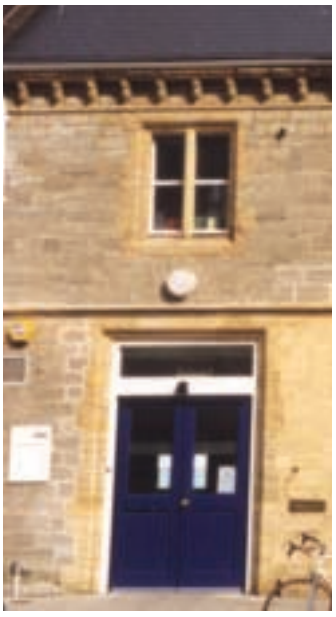
CASE STUDY 4: IMPACT POSITIVELY ON THE LOCALITY

Bow Idea Store, Tower Hamlets

The Bow Idea Store is the first in a network of Idea Stores that will combine popular elements of traditional libraries and adult education, with opportunities to learn and relax in modern, high-street settings. The Bow Idea Store has transformed library usage and the take up of adult learning since it opened in May 2002. Until then, only 16% of residents used their local library. Now, three times as many people in the Bow area use the Idea Store than the previous library facilities.

This has been achieved by creating a modern, high-tech environment and ambience that is more in line with up-to-the-minute high street retailing than the traditional library. Users can explore the Internet, read newspapers and magazines in the Idea Store Café, learn a new skill together with their children or read a book on one of the sofas.





CLIENT	Dorset County Council
DESIGNER	Dorset Property Management
COST	£757,000
PROCUREMENT	Traditional
FURTHER DETAILS	Better Public Libraries, CABE and Re:source

CASE STUDY 5: IMPACT POSITIVELY ON THE LOCALITY

Bridport Library, Bridport

With a traditional urban pattern and large conservation area containing many listed buildings, Bridport presented Dorset County Council with a challenging project when they decided to convert an 19th century building into the town's library. Originally a house, and later a police station, the last use of the building was as the town's fire station.

The brief stressed the importance of balancing the need to create a functional library, which sells itself, with the need to be sympathetic to the character of the building, street and surrounding urban form.

The result is a sensitively restored façade behind which sits a large modern structure containing a well equipped, airy library, arranged on an open plan ground floor and galleried first floor. It was awarded the Public Libraries Group (of CILIP) Public Library Buildings Award 1999 for best converted small library.

5. MINIMISE OPERATION AND MAINTENANCE COSTS, AND ENVIRONMENTAL IMPACT

This value driver has a significant impact on value for money, second only to business operating costs. It covers impact on the natural environment and issues of sustainability (including the use of sustainable materials in its construction), as well as all those things that the occupier must do to maintain the internal environment, keep it clean and maintain the fabric internally and externally.

- Day to day, the building should be easy to clean, maintain and operate due to its finishes, layout, structure and engineering systems. The design of the building should respond to the site microclimate and should minimise carbon dioxide emissions and the energy consumed for lighting, heating, cooling and ventilation. The effect of future environment change should be considered when designing the building.

  In the longer term the building's finishes and components should be durable and resist wear and tear, and be easily replaced when necessary. To minimise periodic maintenance, equipment should be robust and easy to service.
- The purposes for which the building and the parts of a building will be used are likely to change over its lifetime. The technologies it contains will change as well. A good design will be flexible – able to accommodate changing requirements without major alterations where possible – and adaptable, that is, capable of being altered or extended conveniently when necessary.
- The methods and materials used in construction should be well thought through, particularly with regard to ease of construction and safety. The building should be designed for minimum waste and energy use during construction. Water should be conserved and strategies for potential pollution from the construction process implemented. Care should be taken to protect and enhance biodiversity during and after construction. The design should take account of ease of demolition and the ability to recycle materials.
- Facilities Managers should be using feedback tools and techniques to actively manage building performance. Wastage can be reduced, sustainability improved and effectiveness maintained through vigilant and active monitoring and management of the building performance.

Key Questions

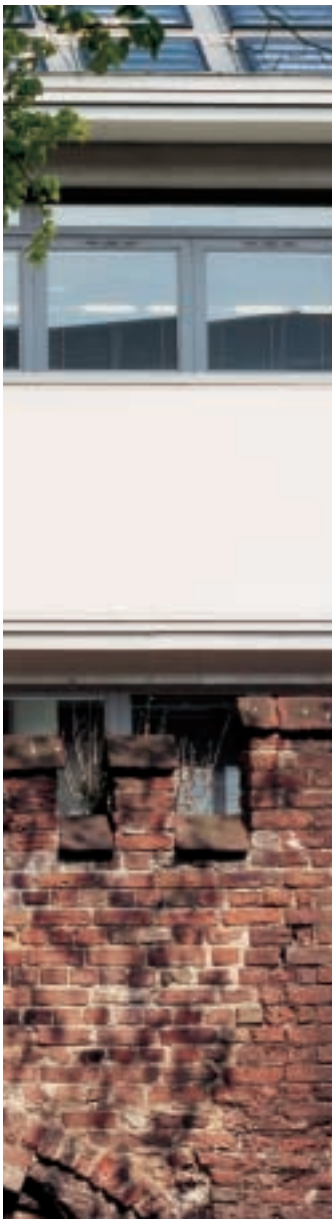
1. Will the building be energy efficient?
2. Is the building easy to clean and maintain?
3. Will the building embrace the principles of environmental sustainability and use renewable materials?
4. Have steps been taken to minimise waste and energy use during construction?
5. Are the finishes durable, resisting weather, wear and tear?
6. Will the design take full account of maintenance, operating and disposal costs?
7. Have sustainability requirements been set out in the brief?
8. Will the project comply with current sustainability initiatives?
9. Has the completed project met or exceeded targets for sustainable use of the facility, including utility consumption?
10. Will the building be actively managed using monitoring and user feedback techniques?
11. Will the project location encourage use of public transport?
12. How will the building protect and enhance biodiversity?
13. Has "whole-life cost" assessment been used?
14. Has the project evaluated the competence, resources and commitment of designers and contractors in relation to Health & Safety, training and engagement with local communities?
15. Has the project been carried out under the Considerate Contractors Scheme?

Possible Metrics

- Annual cost of cleaning and maintenance
- Annual cost of heating, cooling and lighting
- Total Occupancy Cost Code (TOCC), or equivalent, in use
- Frequency of periodic maintenance
- Availability of spares/replacement components
- Results of environmental sustainability assessments
- Use of positive feedback techniques in line with OGC guidance
- Responses to monitoring and feedback
- Integration of Facilities Management team within the briefing process

Examples of Value Metrics

- Annual cleaning, energy and maintenance costs per unit area
- Frequency and cost of periodic maintenance per unit area
- BREEAM or equivalent
- Total Occupancy Cost compared with benchmarks in Total Occupancy Cost Survey (TOCS)
- Result of PROBE survey (Post-occupancy Review of Buildings and their Engineering)
- Constructing Excellence Environment KPIs
- DEFRA's Framework for Sustainable Development on the Government Estate



CLIENT	King's Lynn and West Norfolk Borough Council
DESIGNER	Jeremy Stacey Architects
CONTRACT VALUE	£2.5 million
PROCUREMENT	Traditional
FURTHER DETAILS	www.betterpublicbuildings.gov.uk *New development in historic areas,* CABE and English Heritage

CASE STUDY 6: MINIMISE OPERATION AND MAINTENANCE COSTS, AND ENVIRONMENTAL IMPACT

Juniper House, Kings Lynn

An innovative approach to the development of a low energy public building on an extremely sensitive site in a conservation area, this mixed use development combines housing and offices around a new public garden. The metal roof houses solar panels which provide hot water, while the south-facing top storey has a strip of windows running along its whole length, providing excellent light for those working in the office. These are sheltered from excessive heat gain by projecting eaves and internal blinds within triple glazed windows.

The environmental strategy and construction methods adopted have enabled the office building to be mechanically ventilated with fresh air rather than air conditioned. High insulation levels and the use of concrete planks to store and circulate heat and ventilation are employed to create a comfortable working environment with minimal energy needs. This has produced predicted energy costs of £5,000 per year, rather than the £23,000 per year which would be expected for a conventional office building of this size, thus providing a considerable reduction in the life-time cost of the whole project.

6. COMPLY WITH THIRD PARTY REQUIREMENTS

This value driver is concerned with the impact of the building on stakeholders and vice-versa. It also addresses compliance with legislation through the project life cycle, including use.

- A stakeholder is anyone who has a stake or an interest in a building, who will be affected in some way by it and so has an interest in influencing it. They may or may not be directly involved in its design, construction or use.
- Appropriate levels of consultation with third parties, beginning early on in a project, are very important in ensuring that the building satisfies stakeholder requirements. If third parties are consulted too late in the construction process, their requirements cannot be easily accommodated in the design without abortive work, often at significant cost.
- Appropriate consultation with stakeholders during the post-completion 'bedding-down' period, and on-going while the building is in use is very important to ensuring that the building satisfies stakeholder requirements and continues to do so, and can respond to changing needs.
- The project team should develop good working relationships with the Statutory Authorities that encourage dialogue and exchange of ideas.
- Consultation should include stakeholders' views on the building's impact on the community.
- The use to which the building will be put may require conformity to specific statutory requirements.
- General Health and Safety issues are the responsibility of all the project team, including clients. The CDM guidelines (Construction, Design and Management Regulations 1994) must be adhered to.
- All central Government clients should adhere to relevant guidance and policy including *Achieving Excellence in Construction* and the *Better Public Buildings Initiative*.

Key Questions

1. Have the design team consulted widely with stakeholders and taken their views into consideration? Have tools such as DQI been used to assess how well stakeholder requirements have been met? Are feedback mechanisms in place to ensure ongoing consultation with stakeholders/users?
2. Does the building comply in all respects with statutory requirements including planning, building and other regulations?
3. Has the client appointed a competent Planning Supervisor?
4. Is the guidance given in OGC's Procurement Guide number 10 – *Achieving Excellence Through Health & Safety* – being implemented?
5. Is there a properly constructed Health and Safety Plan, conforming to Construction, Design and Management Regulations (CDM) and enforced by a competent planning supervisor?
6. Are the contractors and their supply chain rigorous in their attention to Health and Safety during construction?
7. Is the completed building a healthy and safe place in which to work and operate?

Possible Metrics

- Public surveys
- Ease of achievement of planning consent
- Use of Construction Industry KPIs and DQIs
- Accident rates

Examples of Value Metrics

- Design Quality Indicators
- Number of reportable incidents
- Percentage of days lost through accidents
- Operating days lost through sickness
- PROBE survey results
- 'Soft Landings' process in use

CLIENT	Derbyshire County Council
DESIGNER	Derbyshire Consulting Engineers
COST	£525,000
PROCUREMENT	Traditional
FURTHER DETAILS	*Celebrating Innovation*, CABE and Rethinking Construction

CASE STUDY 7: COMPLY WITH THIRD PARTY REQUIREMENTS

The Torrs Millennium Walkway, New Mills, Derbyshire

An imaginative and technically challenging project to construct an elevated walkway along a sheer face of the Torrs Gorge in the Peak District National Park. The complexity of the site – above a fast flowing river and against a rock face – demanded an exceptional design and engineering response.

For a scheme with a number of sensitivities, from safety to heritage, it was seen as important to adopt a partnering approach from the earliest stage. The project team included a heritage specialist and a health and safety officer; numerous bodies were consulted, including the Environment Agency, English Heritage and the Fieldfare Trust (representing the disabled).

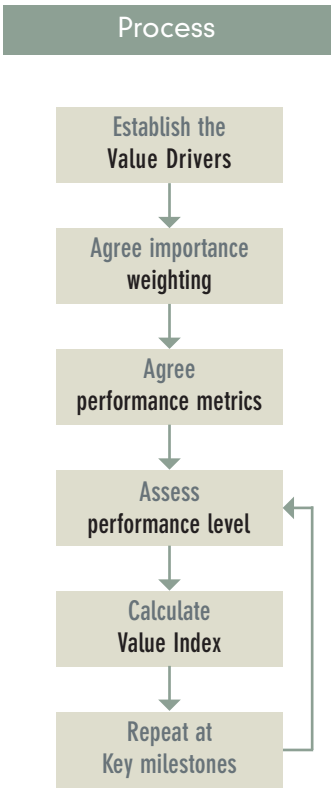
The lack of good and continually safe site access, the very limited working space and the fast flowing water meant that minimisation of future maintenance was a significant design and detailing influence. Careful consideration was therefore given at the start of the project to choice of materials, detailing and steelwork protection. The involvement of the contractors was vital in specific areas such as buildability, resolving access problems and the development of safe building methods, particularly in the use of pre-assembled components.

APPENDIX A: VALUE ASSESSMENT TOOL

The following process can be used to assess the value of a project. It takes into account cost as well as the value added through good design. It may be used by auditors or members of the project team to assess progress towards achieving good value.

The key steps in the process are:

1. Establish the project specific **value drivers** with the project team.
2. **Weight the importance** of the value drivers to the client and end users (this must be done with the client and end users rather than the design team, but the discussion provides useful learning for the team).
3. Agree, with the client and the project team, the **metrics** for each value driver and the method for measurement.
4. Establish the **limits** for each metric (the lower limit being the lowest acceptable and the upper limit being that which will deliver excellence). Use these limits to establish a 1-10 scale (1 unacceptable, 10 excellence).
5. Establish consensus within the team on the current predicted **performance level** against each value driver using the 1-10 scale.
6. Calculate the **value score** using each measure by multiplying the weighting by the performance level (this also provides a good indication of where to apply effort most effectively to increase value).
7. Add up all value scores to arrive at the **value index** (a weighted measure of performance against all the value drivers).
8. Plot progress.



The following pages include:

- A Proforma Value Assessment Tool
- A worked example for a Court Building
- An example of tracking added value over the life of a project

PROFORMA – VALUE ASSESSMENT TOOL

				Bad End									Good End	
	Value Driver • Project Objectives	Importance Weight%	Measures used by the project or establish score using answers to questionnaire	1	2	3	4	5	6	7	8	9	10	Weighted Value Score
1.	Maximize business effectiveness													
2.	Ensure effective project management and delivery													
3.	Achieve the required financial performance													
4.	Impact positively on the locality													
5.	Minimise operation and maintenance costs, and environmental impact													
6.	Comply with third party requirements													
													Value Index (=Sum of all Value Scores)	

Guide to value for money: Total Value Index >850 Excellent >750 Good >500 Room for improvement >350 Requires improvement

SCENARIO – EXAMPLE FOR A COURT BUILDING

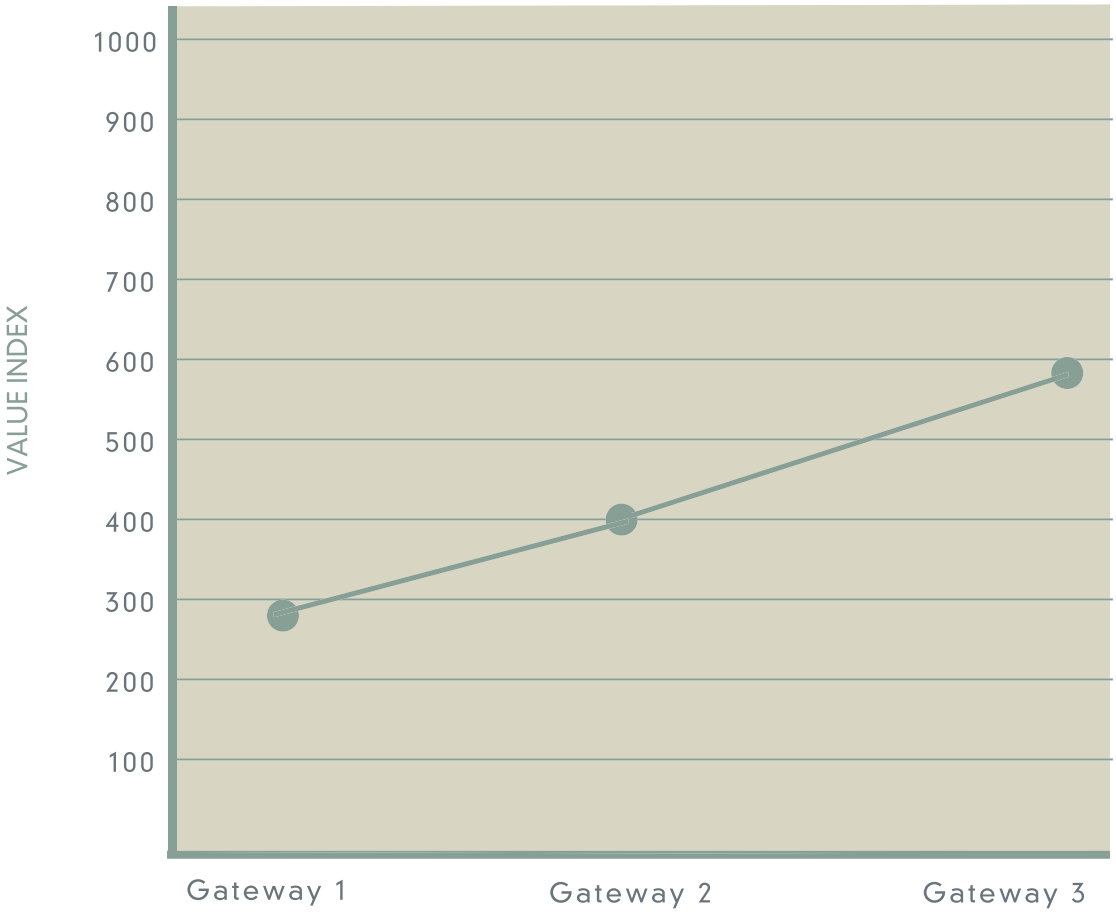
Value Driver	Weighting %	Scenario	Targets
1. Maximise business effectiveness	30	Problems with achieving segregated circulation leading to overly long corridors and unwanted changes	Judged poor, say 3/10
2. Ensure effective project management and delivery	15	Gateway 3 Review was critical of the rigour of risk and value management	Judged in middle of range, say 5/10
3. Achieve the required financial performance	20	Cost plan currently indicates £18.5m	Yardstick £15m with allowances for about £20m
4. Impact positively on the locality	10	Stunning external looks conveying a very dignified image	Judged very good, say 8/10
5. Minimise operation and maintenance costs, and environmental impact	15	Innovative naturally ventilated courtrooms are expensive to build but inexpensive to operate.	BREEAM Rating Excellent.
6. Comply with third party requirements	10	Proposals well received at presentation to public. Planners very supportive.	Judged good, say 7/10

EXAMPLE FOR A COURT BUILDING – COMPLETED PROFORMA – GATEWAY 3 REVIEW STAGE – VALUE ASSESSMENT TOOL

				Bad End									Good End	
	Value Driver	Importance Weight%	Metric	1	2	3	4	5	6	7	8	9	10	Weighted Value Score
1.	Maximize business effectiveness	30	DQI	1		(3) *							10	90
2.	Ensure effective project management and delivery	15	Successful Gateway Reviews	1				(5) *					10	75
3.	Achieve the required financial performance	20	Capital Cost	£20m		£18.5m *							£15m	60
4.	Impact positively on the locality	10	Judgement	1							8 *		10	80
5.	Minimise operation and maintenance costs, and environmental impact	15	BREEAM	Fail							Good *		Excell-ent	120
6.	Comply with third party requirements	10	Public Survey	1						(7) *			10	70
													Value Index (=Sum of all Value Scores)	495

Guide to value for money: Total Value Index >850 Excellent >750 Good >500 Room for improvement >350 Requires improvement

REPORTING PROGRESS



APPENDIX B: INTEGRATED PROCUREMENT ROUTES

Since April 2000, government policy has been that construction projects should be procured by one of the three recommended procurement routes (PFI, Prime Contracting or Design & Build). Before concluding the preferred integrated procurement route, Departments should consider the HMT report 'PFI: Meeting the Investment Challenge'. This suggests that construction projects whose capital cost does not exceed £20m are not likely to achieve value for money under the PFI route. Traditional procurement routes should only be used if they demonstrably add value in comparison to the three recommended routes. Assessing value for money is a central process in procurement. For PFI projects the Government will institute a new assessment of the potential value for money of procurement options when overall investment decisions are made; reform the Public Sector Comparator (PSC) (an alternative route may still be chosen); and set up a final assessment of competitive interest in a project.

PFI

Where the public sector contracts to purchase quality services, with defined outputs from the private sector on long-term basis, and including maintaining or constructing the necessary infrastructure so as to take advantage of private sector management skills incentivised by having private finance at risk.

Prime Contracting

Using a single contractor to act as the sole point of responsibility to a public sector client for the management and delivery of a construction project on time, within budget (defined over the lifetime of the project) and fit for the purpose for which it was intended, including demonstrating during the initial period of operation that operating cost and performance parameters can be met in accordance with a pre-agreed cost model.

Design and Build

Using a single contractor to act as the sole point of responsibility to a public sector client for the design, management and delivery of a construction project on time, within budget (taking account of whole-life costs) and in accordance with a pre-defined output specification using reasonable skill and care.

APPENDIX C: ACHIEVING EXCELLENCE ACTION AREAS AND TARGETS

Strategic Level Targets

	Target Description	Target Date
1.	70% (by volume) of construction projects reaching Gate 5 in the period 1 April 2003–31 March 2005 to be delivered: • On time • Within budget • To exceed consumer and stakeholder expectations; and • With zero defects	31 March 2005
2.	For each key sector to reduce the average time period from start of procurement (Gate 2) to award of contract (Gate 3) by: • 25% for construction projects taking over a year between Gates 2 and 3; and • 15% for all other construction projects.	31 March 2005

Action Areas for Departments, 2003-2005

1.	Sign up to and implement Clients' Charter, including KPIs. Sign up to and implement DQIs.
2.	Implement the "Achieving Sustainability in Construction Procurement Sustainability Action Plan".
3.	Use integrated procurement routes (PFI, Prime Contracting or Design & Build) for new property and construction projects, based on a best value for money approach.
4.	Use whole-life costing on all new property and construction projects.
5.	Implement the recommendations of the joint CABE/OGC Report "Improving Standards of Design in the Procurement of Public Projects" on all new projects.
6	Achieve an 85 per cent supplier satisfaction rating.
7.	Achieve a 10 per cent annual reduction in reportable accidents on construction sites.
8.	Introduce partnering into all property and construction projects.
9.	Report annually to OGC on value for money gains on property and construction projects.
10.	All departments, their agencies and NDPBs involved in grant funding should review their procedures for ensuring property and construction projects achieve best value for money.
11.	All clients with an annual spend of over £0.5 million on property and construction projects, including rent, maintenance and refurbishment, should sign up to *Achieving Excellence*.

APPENDIX D: IMPROVING STANDARDS OF DESIGN IN THE PROCUREMENT OF PUBLIC BUILDINGS

The joint CABE/OGC publication *Improving Standards of Design in the Procurement of Public Buildings* sets out 11 recommendations for improving the design quality of building and infrastructure projects procured by the public sector. The recommendations are:

1. Every public sector client undertaking one or more capital projects above an agreed threshold should appoint a senior design champion for the project.
2. All Departments should also have in place clear procedures to ensure that schemes that do not achieve an acceptable level of design quality do not receive public funding and do not proceed until they do.
3. Government Departments should repeal or update procurement guidance to bring it into line with the Government's policy on design and sustainability issues.
4. OGC should keep under review in its Gateways and Project Review Group processes, and in Departmental review processes, how design issues are addressed, to ensure that the design process is properly managed within the procurement process, including:
   - the use of appropriate design advice
   - the benchmarking of design standards
   - the evaluation of design quality
   - endorsement and approval processes.
5. Departments should ensure that clients adopt an appropriate mix of minimum design standards or quality thresholds, outputs and desired outcomes, within their project specifications, sufficient to reflect and protect the legitimate interests of the public sector client as an ongoing service provider.
6. Within their design action plans, Government Departments should demonstrate how they will devote appropriate time, training, research, resources and expertise to individual construction clients falling under their responsibility, including design management issues.
7. Departments should ensure that clients use PFI only where it offers best value for money, taking account of a properly constructed and realistic Public Sector Comparator which reflects current best practice and conformity to all relevant Government policy, including its commitment to design excellence.
8. CABE (and OGC) should publish specific guidance on involving users of buildings in the procurement process, including the design stages.
9. Public sector clients procuring project bundles under a single contract should demonstrate to the satisfaction of the relevant Department and, where applicable, the Gateway process and Project Review Group, how they will address the design challenges involved.
10. CABE and OGC should investigate further the benefits and demerits of the use of design exemplars in real cases, wherever undertaken.
11. Departments should ensure that clients are signalling the importance of design quality as a project selection criterion from the outset of the selection process through the documentation, in the weighting given to design and design capability in the bid evaluation criteria, and finally in the development of contractual documentation and sign-off procedures.

APPENDIX E: GLOSSARY

BREEAM: Building Research Establishment Environmental Assessment Method
www.bre.co.uk

Construction Design and Management Regulations (CDM): These regulations require a client to appoint a planning supervisor to check that construction, site and project Health and Safety are taken into account throughout the planning and design phases and to co-ordinate the production of the Health and Safety file.

Design Quality Indicator (DQI): An online tool that allows design quality to be evaluated at all stages of the construction process from inception through to post occupancy analysis. Using an on-line questionnaire, DQIs allow everyone involved in a project, from construction and design professionals to users and visitors, to give an opinion on design quality.
www.dqi.org.uk

Key Performance Indicator (KPI): The measure of performance of an activity that is critical to the success of an organisation or project, KPIs can be used by organisations to benchmark their performance against the rest of the industry or sector. KPIs can form the basis of a more comprehensive set of performance measures. Regular measurement using appropriate KPIs enables an organisation to set and communicate its performance targets, and to measure whether it is achieving them.

Senior Responsible Owner (SRO): The senior manager in the business unit that requires the project who has status and authority to provide leadership.

Whole-Life Costs (WLC): The full costs of all the parts that go to make up a building, including initial capital costs, replacement costs, maintenance and repair costs. Sometimes referred to as life cycle costs.

PROBE Survey: First published in "Building Services – the CIBSE journal" from 1995 to 2002, it aims to provide a rounded understanding of how a building performs, and what its occupants and managers think of it.

Office Productivity Network: An information resource for managers of office-based businesses to improve the productivity of their workforce through their office environment (www.officeproductivity.co.uk)

Total Occupancy Cost Code: The Occupiers Property Databank (OPD) International Total Occupancy Cost Code defines costs and cost ratios for most standard types of property such as offices, retail, factories and warehouses.

Total Occupancy Cost Survey: An annual survey conducted by consultants Actium Consult and CASS Business School, with input from a range of facilities services providers. It captures and validates the latest office occupancy cost data against cost definitions, to allow users to measure the real cost of office occupation and enable effective comparison.

'Soft Landings' Process: An approach designed to smooth the transition leading up to handover of the building, and on into beneficial use. It concentrates on "aftercare" services by extending design and building team duties for up to three years after practical completion.

APPENDIX F: USEFUL PUBLICATIONS

Achieving Excellence in Construction Procurement Guidance Suite, OGC

- *Achieving Excellence in Construction: A manager's checklist*
- *Achieving Excellence in Construction Projects Pocketbook*
- *Achieving Excellence in Construction Procurement Guide 1: Initiative into action*
- *Achieving Excellence in Construction Procurement Guide 2: Project Organisation*
- *Achieving Excellence in Construction Procurement Guide 3: Project procurement lifecycle*
- *Achieving Excellence in Construction Procurement Guide 4: Risk and value management*
- *Achieving Excellence in Construction Procurement Guide 5: The integrated project team*
- *Achieving Excellence in Construction Procurement Guide 7: Whole-life costing and cost management*
- *Achieving Excellence in Construction Procurement Guide 8: Improving performance project evaluation and benchmarking*
- *Achieving Excellence in Construction Procurement Guide 9: Design quality*
- *Achieving Excellence in Construction Procurement Guide 10: Health and Safety*
- *Achieving Excellence in Construction Procurement Guide 11: Sustainability*
- *Achieving Excellence in Construction – Integrated Project Teams*
- *Achieving Excellence in Construction – Using Feedback to improve building performance*

Better Civic Buildings and Spaces CABE

Better Public Buildings HM Government

Building in context: New Development in historic areas CABE/English Heritage

By Design: Urban design in the planning system towards better practice CABE/DTLR

Celebrating Innovation: Innovation and integration in design and construction CABE/Rethinking Construction

Creating Excellent Buildings: A Guide for Clients CABE

Design review: guidance on how CABE evaluates quality in architecture and urban design CABE

Gateway Review Leadership Guide OGC

Getting value for money from procurement: how auditors can help NAO/OGC

Government Communications Headquarters (GCHQ): New Accommodation Programme, NAO report HC955 2002–03

Green Book (Appraisal and Evaluation in Central Government) HM Treasury

Improving standards of design in the procurement of public buildings CABE/OGC

Modernising Construction, NAO report HC87 2000–01

Operational Performance of PFI Prisons, NAO report HC700 2002–03

PFI: Construction Performance, NAO report HC371 2002–03

PFI: The New Headquarters for the Home Office, NAO report HC954 2002–03

The Value of Good Design: How buildings and spaces create economic and social value CABE

Treasury Taskforce Technical Note No 7: How to achieve design quality in PFI projects HM Treasury

Websites:

www.audit-commission.gov.uk

www.cabe.org.uk

www.nao.gov.uk

www.ogc.gov.uk

Value for money in construction is about more than delivering a building to time, cost and specified quality.

Good design also contributes to staff recruitment, retention and motivation, issues that increase value for money across the life of the asset.

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Office of Government Commerce