

Creating Excellent Buildings

A Guide for Clients

First Edition 2003

cabe

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This guide has been written and produced by Joanna Eley of Alexi Marmot Associates (AMA) together with input from Davis Langdon Consultancy (DLC) and the CABE steering committee: Joanna Averley (Chair), Commissioners Robin Nicholson, Sunand Prasad, Richard Feilden, Dickon Robinson and members of CABE: Jon Rouse, Juliet Bidgood, Selina Mason, Mairi Johnson, Caroline Fraser, Claire Hender and Paul Lavelle. Designed by Draught Associates.

Many people and organisations have contributed both, ideas and financial support to this guide and we are grateful to all of them. Sources include 'best practice' literature, the experience of CABE staff and Enablers, practitioners and invaluable testing of ideas with clients of projects across the public and private sectors.

Thanks are due to: Organisations which fund the work of the Enabling Programme and which have assisted and supported the collection of best practice: Office of the Deputy Prime Minister, Department of Culture Media and Sport, Arts Council England, Department for Education and Skills, Office for Government Commerce, Department for Constitutional Affairs, Sport England, The Heritage Lottery Fund, The Housing Corporation. Practitioners including Clive Birch, Buro Four Project Services; Andy Ford, Fulcrum Consulting; Ron German, Stanhope Plc; Justine Leech, Landscape Architect; Peter Rogers, Stanhope Plc; Jennifer Wood, MACE; John Waldron, architecture plb; Sir Jack Zunz, Arup. Clients for projects with many organisations including : Chris Byron, British Airways; John Dee, BBC; Anne Griffiths, Government Office for London; Peter Handcock, Glaxo Smith-Kline; Mike Hayton, BP; Peter Hindley, Great Ormond Street Hospital for Sick Children.

The guide aims to help you achieve the project you need. It offers advice based on the experience of the CABE enabling team and is supported by all CABE's funders. It is not a substitute for good professional advice but we hope it will be useful. Legal responsibility for all projects remains with the client.

Foreword

The process of creating buildings is one of the most complex, challenging and fulfilling activities that an individual or organisation can undertake. The client role is a crucial success factor in the quality of the final product.

I have been developing new buildings and spaces for over thirty years. I am still learning how to do it well, to create places of real distinction that are attractive and desirable to the people who will use and occupy them.

As Chairman of CABE I have the opportunity to see hundreds of clients each year starting down the path of a new building project. Most will rightly set off with great aspirations, to achieve a high quality building, to keep control of the budget and to finish on time. But it is not an easy process. To be a successful client requires a combination of attributes and attitudes – leadership, boldness, shrewdness, excellent communication, determination and dedication.

One other great advantage is experience. Good clients learn from their mistakes. But many clients do not have the benefit of experience. Some will be undertaking only a small number of projects, perhaps just one building. How do they avoid the pitfalls and achieve an excellent outcome?

One way is to borrow from the experience of others. At CABE, we have a huge collective knowledge based on best practice from around the world. Our team of over 100 experts, including many successful clients, have pooled our experience to put together this client guide. The ten key success factors and the selected case studies described in this guide will help any client through the development process to produce an excellent building.

You can get a summary of this guide from our offices or website, as well as the companion guide to masterplanning *Creating Successful Places – A Guide for Masterplanning Clients*.

And finally, why not tell us about your experiences as a client. We want to keep learning as well. So if you have any useful guidance or even some more case studies, please let us know and we may well include them in a future edition of the guide.



A handwritten signature in black ink, which appears to read "Stuart Lipton". The signature is stylized and fluid.

Sir Stuart Lipton

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1 Introduction

1.1 A guide to success

“You must have a client, and it does not matter how expert that client is: that client has to be single-minded, must be a patron, and must not be a substitute or a committee – neither work. He or she has to be the individual in the organisation who has the authority, the vision and the financial muscle to make the project happen.”

Rogers, Peter 'The client and the design team', in Spence, R et al *Interdisciplinary Design in Practice*, Chapter 3, p26 Thomas Telford, London, 2001.

When a building project goes well it is an exhilarating and enjoyable adventure. Yet many – even experienced – clients find it a nightmare. This guide from CABE on how to create excellent buildings will help make the process positive and ensure that a quality building results. It will tell you what you need to do to get the best from all the people – advisers, designers contractors and sub-contractors – you will need to employ. Get the right team and you can expect professionalism, design skills and expertise in project delivery from the best players in the construction

industries, but that only takes you so far. Great projects need great leadership to inspire a great team to a great performance. It is when you, the client, contribute your strengths, knowledge, care and commitment to quality that you will get the best out of those working for you, so that together you can create wonderful buildings and exceptional environments.

One of the first concerns is always money. There is almost never enough to spend on a project and you want to make sure you get good value. Being concerned from day one about the budget is not something to be embarrassed about – it's good sense. Honesty about how much you've got to play with is always the right starting point. A good design team should be able to work with a reasonable known budget and the discipline can stimulate creativity and innovation. Sound financial management and an aspiration for excellent quality go hand in hand.

There is something in this guide for all clients. Projects vary enormously in scale, the way they are procured and the level of client expertise. In CABE's work alone, projects range from a half million pound nursery to a multimillion-pound hospital. If your early work indicates that a construction project, either a new building or substantial refurbishment

of an existing building, will be the best way to meet your needs, whatever the size of the project you can help steer the process to a successful conclusion.

There are many different ways to procure construction projects, but the principles behind achieving good design are the same in all of them. This guide has been written for you, the 'client', the person or group that 'owns' the project. Our aim is to help see that the process and final results deliver excellent projects, so that clients, users and stakeholders over the coming years can profit from the value that good design quality can bring.



2

The guide should help clients from the public, private and voluntary sectors with their design and construction teams to:

- set up the right processes and procedures for a project
- choose the best people with whom to work
- identify the right procurement route
- manage the budget to achieve a quality solution
- achieve excellence in design
- avoid pitfalls
- find sources of information and support

Client advisers and design teams will also find the guide useful. Also, projects in the public or private realm are relevant to many other 'stakeholders', such as users, neighbours, funders, visitors, passers-by and even future generations. The guide can help these stakeholders understand the project process and communicate with clients.

The guide reflects the questions and issues identified through CABE's Enabling programme. It will not teach you to become a project manager or to do without legal, design or other specialist advice. Rather, it is a guide to becoming a knowledgeable client who, with the right people and processes, can deliver a well-designed project.

1.2 Where to find help in the guide

The introduction outlines ten key ways →→ a client can ensure that their contribution to the team effort will achieve best whole-life value. These ten keys will help you manage your project well so that your building embodies the attributes of good design:

- suitable for its intended use
- built to last
- adaptable
- safe to construct and occupy
- sustainable to construct and use
- contributes to its context
- looks good

The following sections of the guide look at the four main stages of a project: prepare, design, construct and use; indicating the client's role at each stage and providing basic information to help you ask the right questions of the best people. The four stages vary for different project types and procurement routes but are relevant to any project, whether publicly or privately funded or commissioned by a voluntary organisation. A checklist for clients precedes each of these four sections.

The latter sections of the guide give more detailed information. Sections 6 and 7 contain contacts, references and checklists for different projects and building types and a glossary to help you understand the many terms peculiar to the construction industry. The final part contains worksheets covering technical issues such as procurement, including Private Finance Initiative (PFI), competitions and procedures for following the European procurement laws.

By its nature, the content is technical and you should not attempt to take it in all at once. Instead, refer to it at key stages and when making decisions, share it with others and annotate it. However, we suggest that all readers, whatever stage their project has reached, start by reading the whole of Section 1.

1.2.1 Using the guide

Margin note indicators – → in the text of the column next to the margin.

→→ in the text of the column further from the margin.

Boxes – a numbered list is on page 202.

Figures – a numbered list is on page 204.



Characters that have a role in the process are identified in the text and diagrams.



Section 1.4

1.3 Good design produces better value

“Good design may initially cost a little more in time and thought, although not necessarily in money. But the end result is more pleasing to the eye and more efficient, costs less to maintain and is kinder to the environment.”

Hansard – Lord Rea, House of Lords, 29 January 2003

→→

1:5:200 – Figures from Evans, R, Haryott, R, Haste, N, & Jones, A, *The long term costs of owning and using buildings*, Royal Academy of Engineering

1.3.1 Balancing quality, time and cost

A successful project needs to achieve three linked objectives:

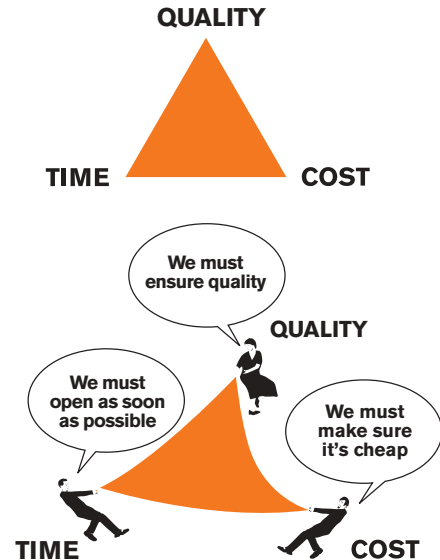
- **Quality** of the building for immediate functional needs and use throughout its life
- **Time** needed for the building to be designed, built, fitted out and ready for occupation
- **Cost** of the construction, materials and all related expenses including cost in use

The art of balancing all three objectives without sacrificing any of them is at the heart of achieving a good outcome. A project must also meet future needs over an acceptable lifetime, for example 30-60 years may be assumed in financial calculations. Balancing the investment in a project over its life against the benefits it will bring is referred to as its ‘lifetime value’ or the ‘whole life value’ or ‘whole life costs’.

It is now generally accepted, and Treasury guidance makes clear, that selecting partners purely on the basis of lowest cost rarely provides best value. The costs of running and

managing buildings over their whole life is proportionately much higher than the initial capital cost. Extra expenditure on design or construction to achieve high quality can pay for itself many times over during the life of the building. Benefits and savings have been shown in various studies. It has been calculated that, for office buildings, the cost of running and maintaining a building over its working life can be five times its construction cost, while costs for people working there may be 200 times as much ←←. These relative relationships are similar for other building types. Clearly, a little extra time, money and effort spent on design and construction can have a big effect.

Fig 1: Quality, time and cost – getting the balance right
Best value involves balancing these objectives without sacrificing any of them



1.3.2 Evaluating design quality

By insisting on design quality you challenge the design team to use the maximum creative talent. Good design depends on using good designers as well as on defining and delivering a project. However, defining design quality should not be left solely to designers. You need to develop your own expectations and aims for the project and test them against the design throughout the process. Comparison with completed projects – particularly with successful best practice examples →→ – can help improve processes and targets. Box 5 shows some of the many ways that a client can build up a knowledge base that will provide benchmarking material. Questions to ask in order to evaluate the design quality of a project are set out in CABE's publication *Design Review*, which gives a list of the main principles of a well designed building. →→

Design quality is needed on several levels:

- **the broad issues** – a project's relationship to surrounding streets and buildings, local culture and global concerns such as sustainability: good design should enhance the neighbourhood, lift the spirits and symbolise the best in our society
- **the personal scale** – a good design can help support people to perform their job or use the building effectively and positively
- **the detail** – such as the quality of daylight in a room, or detailed finishes

A well designed building has a greater value to all involved. It can help to attract and keep good staff, it is likely to be easier to gain local acceptance and get planning permission, it will provide better support to the organisation and a better service to the users, it should be cheaper to run, and ultimately easier to dispose of when no longer needed.

←←

M4i demonstration projects
www.M4i.org.uk

←←

Box 1



Box 1: Principles of a good building

Good design provides positive internal and external planning and a building that contributes to the business or user organisation, fits well into the neighbourhood, is safe to build and use, is adaptable and sustainable, has low maintenance and operating costs, attractive materials and finishes, cost effective systems and improved effectiveness for the users. It is designed using the following principles:

- visually well organised – shown by things like symmetry or asymmetry and balance
- clearly organised for the user - from site planning to building planning
- a building showing what its function and role is, by its relation to public space, and features that can be seen from outside
- suitable level of prominence – sometimes buildings should be prominent, sometimes discreet
- straightforward – the design should not disguise the real way it is built
- well matched parts of the building – the structure and detail of a building should fit together as part of a clear approach to style, and the building function
- care with how it fits into and enhances the local neighbourhood
- care with how light and sun fall on the building, and with views from it and of it – considering energy efficiency, the function of the building throughout time, day/night, summer/winter
- detailing and materials – particularly considering how well finishes wear and last and whether the materials used help towards a sustainable approach
- structure, environmental services and energy use – these aspects should be part of the overall design from the earliest opportunity
- flexibility and adaptability – a building able, within reason, to cope with changes in the needs of the user and potential technological developments
- sustainability – balancing all the inputs and outputs for the building and its site, minimising waste by using natural resources carefully and disposing of what remains responsibly, designing to promote these for the life of the building
- beauty – does it lift the spirits?

CABE *Design Review*, London, 2002

1.3.3 Achieving excellence

Government has recognised that effective construction procurement is central to the delivery of policy objectives. In 1999 the Treasury launched Achieving Excellence in Construction to improve the performance of central government as clients of the construction industry. This put in place a strategy for sustained improvement in construction procurement, performance and in the value for money achieved by government on its construction projects. This is not the lowest cost but the best balance of quality and whole life cost to meet the users' requirement.

The Achieving Excellence initiative set out a route map with challenging targets for government performance under four headings – management, measurement, standardisation and integration.

Targets include:

- use of partnering and development of long-term relationships
- shorter financial and decision-making approval chains
- improved skills development and empowerment
- the adoption of performance measurement indicators
- the use of tools such as value and risk management and whole life costing

Significant progress has since been made in adopting the principles. The focus is now on delivery targets, to help departments build on the progress already made. →→



4

The Office of Government Commerce (OGC) has produced guidance that builds on departments' experience of implementing Achieving Excellence and reflects recent developments in construction procurement. The new guidance complements the OGC Gateway process, the emerging lessons learned from Gateway reviews and OGC's *Successful Delivery Toolkit*, of which it forms a key component. www.ogc.gov.uk or call 0845 0004999



1.3.4 The Design Quality Indicator (DQI)

This is a tool to help define and evaluate design. It is based on three aspects of design quality – impact, build quality and functionality. 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 intentions and assess the design quality as a project progresses from a brief through design to construction and use. The process can help communicate and share values, clarify design strengths and weaknesses and identify opportunities for improvement.

Fig 2: **The Design Quality Indicator (DQI)**
The more overlap there is between these three quality fields the higher the quality

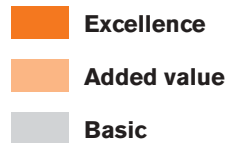
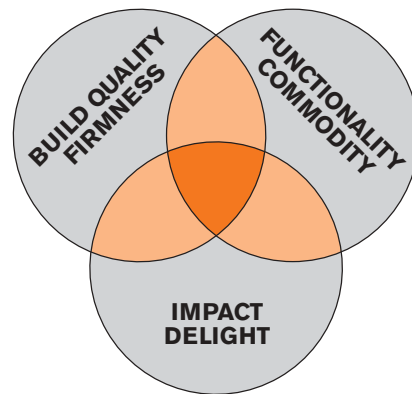
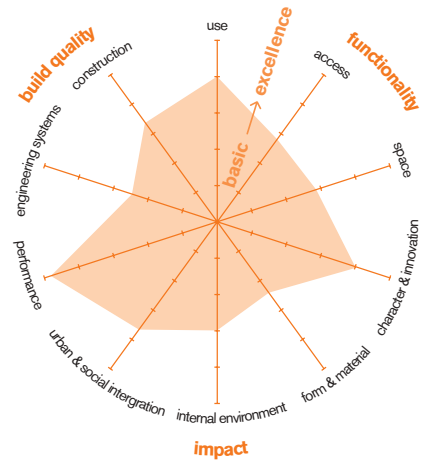


Fig 3: **The DQI interrelationships**
Each quality can be assessed by different people at different stages of the process



Box 2: The Design Quality Indicator

Each topic under the three main indicator sections is separately rated against a group of about 10 questions:

1 Impact:

- character and innovation
- form and materials
- internal environment
- urban and social integration

These refer to the building's ability to create a sense of place and to have a positive effect on the local community and environment. They also cover the wider effect the design may have on the arts of building and architecture.

2 Build quality:

- performance
- engineering systems
- construction

These relate to the engineering performance of a building, which includes structural stability and the integration, safety and robustness of the systems, finishes and fittings.

3 Functionality:

- use
- access
- space

These are concerned with the arrangement, quality and interrelationship of spaces and how the building is designed to be useful to all.

More information about DQI can be found through the Construction Industry Council, which developed the tool with the support of CABE →. Other specialist tools (eg AEDET for the NHS and DEEP for the Ministry of Defence) are relevant for specific sectors.

← www.dqi.org.uk/index1.htm



1.3.5 Open space

Open space is as important as buildings and must not be dealt with as an afterthought. All buildings directly influence the open spaces around them. Many building projects include open spaces, such as plazas, courtyards, covered atria, or space between wings. At a very early stage the concept design affects the size, location, orientation, views and shading of any open space – its design must be viewed as an integral part of the design of the building. Unfortunately a common problem with building projects is that the detailed design of the open spaces is left so late that their quality is compromised by physical and financial constraints.

Good design of open spaces means making them attractive and safe to use. This involves:

- the relationship between the site and any surrounding buildings
- integrating and respecting historic and cultural buildings and areas
- provision for an appropriate range of activities in the space
- ensuring that the space is overlooked and well lit at night to improve safety
- considering the comfort of the users and integrating the design of features such as seats in sheltered sunny corners, shade or canopies, lighting, signs, transport stops, and public toilets
- creating variety with planting and ground treatment to suit different age groups and physical abilities
- ensuring safe and easy access for all
- organising maintenance and management so that the space is well-tended

1.4 Ten key ways to be a successful client

Each development project is unique, with special local conditions for site, use patterns and social context. However all projects need well structured project management and can benefit from the ten key ways the client can help achieve design quality.

Box 3: Ten key ways to be 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

1

Provide strong client leadership

A successful project needs a strong individual who provides leadership and is supported by a good team. Strong leadership is about vision, good decision-making and proper communications working within a robust project management structure that sets down team relationships and decision-making processes. Effective decision-making is only possible if you have a clear view of what you want to achieve at each stage and are able to give and receive relevant information at the right time. Clear

communication and a well-managed flow of information in both directions is the first line of defence against costly changes and will help ensure that the project meets everyone's needs.

In a large, complex or fast-moving project you may need to share client activities between several people. One important role is that of a 'design champion'. While others are making immediate, expedient decisions, the design champion keeps the long-term focus on the commitment to design quality. Design quality can easily be sacrificed, especially under pressures of tight budgets and timescales. People have found time and again that having a design champion makes it easier to achieve a project that both provides value and serves and delights the client and users for many years.



Success is ultimately measured against your objectives, so they must be understood and shared by all senior people in the organisation. Many people need information – people working inside and beyond your organisation, outside bodies and all stakeholders. It is best to set down your vision for the project right from the start and to use it as a touchstone. You can then expect your architects to test the vision and interpret it in ways that offer even more than you had imagined possible.

You, the client, are the central player. Your building will both reflect and support your organisation. By setting the correct tone you will help ensure that this essential relationship between the organisation and the building is at the heart of the design. This means that you need to make your priorities clear, and set down when you must be consulted or informed and what you expect from everyone else involved. Confusion and ambiguity, which can arise out of internal disagreements and hidden agendas, are damaging and must be avoided.

And remember, enthusiasm and commitment are infectious and will help progress towards success. A successful project is usually fun most of the time for the people involved.

Box 4: Examples of vision statements

Even modest projects need a vision:

“The proposed centre should deliver new levels of service while taking advantage of new models of care. The facilities should enhance working across teams and provide a model for future delivery of primary health care throughout the country. The patient’s experience should be enhanced in a therapeutic environment helping deliver both health and social services.”

“Our new facility will allow us to maintain our position of leadership in the north of England, to expand our services to a wider set of users, while becoming more efficient and effective, welcoming all members of the community.”

For a landmark building a giant vision may be needed:

“From the beginning... I talked about the building in terms of Chartres Cathedral. I said that I wanted people, when they saw this building, to have the same reaction at the end of the 20th century and beginning of the 21st century, that someone who approached Chartres Cathedral in the 15th Century would have had, whether it was a pope or a peasant. You sort of come out of the countryside and all of a sudden there it is – high technology.”

Krens, Thomas, 'The Guggenheim Museum, Bilbao' *Visionary Clients for New Architecture* editor Noever, Peter, MAK Restel, Munich, 1998

2 

Give enough time at the right time

A successful building may last many, many years and therefore the value of putting time in to the project when it is needed cannot be over estimated. You need time to explore options, to get data on which to base decisions, to communicate carefully to all concerned and to decide what help to seek. As a client you will find that you yourself need to put in more time and effort at the beginning than at later stages. The client team has a lot to do and must make the time for it. As well as organising your part in the construction project, you also need to focus early on how you will manage and run the building when you move in.

“Many clients tend to turn round and say, ‘I’m too busy – I’ve got to run the business.’ You are guaranteed at that point to have a problem. Without a unifying ambition, the project will be a battleground where the ambitions of others will fight for ascendancy.”
Rogers, Peter *Interdisciplinary Design in Practice* p36

Projects are rarely completed as quickly as clients expect. For a large building, five years from first thought to occupation is common and even small projects can take two years or more. Sometimes additional time is needed for negotiation with funders, which can take longer than expected. The greatest opportunities for added value come at the start of a project when the end still seems some way off and perhaps unreal. For example, a feasibility study at an early stage may even reveal that a new building is NOT the answer.

If a construction project is the way ahead, a thorough examination of opportunities, alternatives, risks, methods and design options is needed to be sure that the right basic decisions have been taken before too many decisions are fixed.

Reaching a clear understanding of the potential in the project, seeing what exists in the way of successful projects for benchmarking and familiarising yourself with the construction industry take time, especially if you are new to such projects. Many of the early decisions will affect the entire project, so they need to be the right ones.

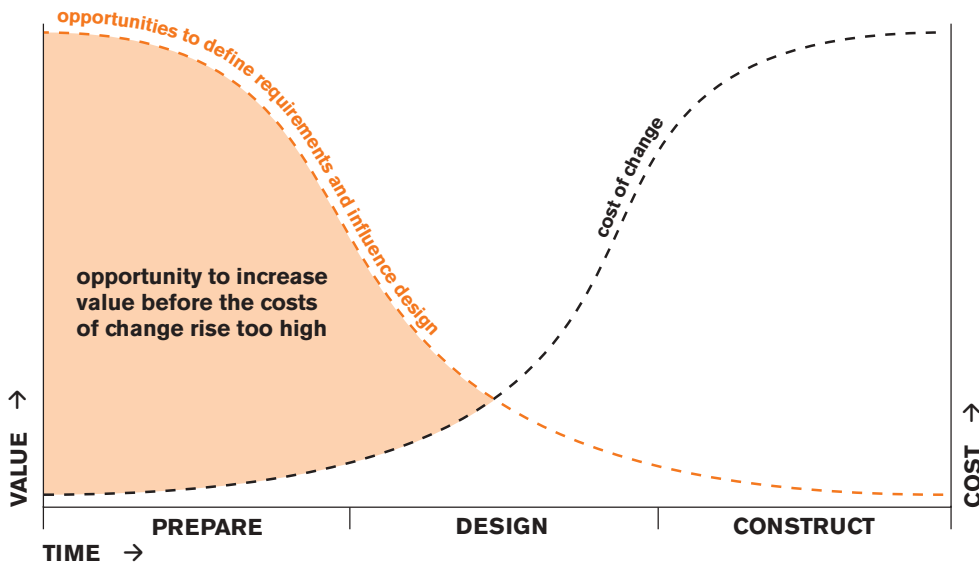
“If you do not take trouble at the beginning, you will most certainly be given it before the end.”
Sir Hugh Casson foreword to Blackmore, Courtenay *The Clients Tale*, RIBA Publications, London, 1990

You need to be particularly careful to make sure that you allow appropriate resources for design. When the process does not allow sufficient time and opportunity for design consultation and feedback the quality of the final project can be seriously compromised, with unfortunate results. If initial design has been carried out before you choose an integrated project delivery team you need to make special efforts to communicate with the designers in the team as soon as you can.

Allowing for time towards the end of a project to absorb the impact of any unexpected twists in the process is also a wise precaution. Avoid planning a rapid move or a public launch immediately after the programmed end of construction, as this will cause problems if there are unexpected delays. After hand-over the building systems are likely to need fine-tuning, and time must also be allowed for that. Alongside commissioning these systems for use, time is well spent in getting feedback in the early days.

Fig 4: Opportunity to increase value

The start of the project is when most can be done to add value through careful preparation and adequate time for design



3

Learn from your own and other successful projects

The most effective decisions are based on thorough knowledge. To know what you could achieve, you need to understand what others have been able to achieve. Best practice examples, demonstration projects, prize-winning schemes, can act as inspiration and as benchmarks to check how well you are doing. Even if you have little experience of construction projects you can rapidly develop knowledge and understanding of relevant examples – and it can be interesting and rewarding.



Looking at buildings and visiting them is a good way to start. Examples can be found through books and journals, CABE publications and digital library, and advice from experienced colleagues. Many of the organisations listed in the contacts section of this guide have good material on their websites. Take every opportunity to visit buildings similar to your proposed project – near work or home, on business or pleasure trips. Visiting a few places with your design and project team will help the whole team understand your values. A checklist of what you want to look at will make the visits most productive – details are as important as the whole. Find out a few markers on comparable projects such as cost per square metre or square metres per person/student/visitor.

Looking is not enough. You will gain valuable insights from talking to people. Find out what other project teams, clients and especially users think of their projects, what they cost, and the process that they went through. The ways they fell short of people's expectations and why is as important as how they succeeded. This background work is important for you to be well informed and confident in supporting excellent design. You can take a very important step at the outset by clearly committing to using feedback. Feedback during the process will help your project improve continuously as you go along. You should carry out reviews at the end of the project (post-project review) and after a period of use (post-occupancy evaluation) to check how well the process went and whether the building works as you had hoped.

Design guidance notes, benchmarks and key performance indicators are published by many organisations to indicate best practice targets in specific areas – some may be particularly important for your project. An example is the Building Research Establishment Energy Assessment Method (BREEAM) that allows you to measure how well your project meets energy efficiency targets. The Office of Government Commerce, and the Construction Industry Council websites provide useful material, including the Design Quality Indicator (DQI). Importantly, the DQI allows all groups, including future users of the building, to contribute their views. →→

Box 5: How to build a knowledge base

Look at:

- similar recent buildings and sites →
- CABE's digital library on recently completed projects →
- case studies in relevant sectors →
- books, journals and the internet
- interesting projects during business or pleasure trips
- feedback literature to help avoid the mistakes of others
- the location you intend/hope to build in and any plans for its future
- details inside and outside buildings, in all types of weather
- some building sites
- special buildings, millennium projects, the new local school

Go with your team if you can.

Talk to people involved in similar projects:

- clients
- users
- designers, project managers and contractors

Ask them about:

- their initial hopes and fears
- how successful the outcome was and why
- the cost per square metre, space per person/student/visitor, of comparable buildings
- what does not work, particularly from the users' point of view
- their experience of procurement routes and teams
- how easy their buildings are to manage and maintain
- how design and construction teams worked on the project

London Open House may be able to arrange visits
www.londonopenhouse.org.uk



www.cabe.org.uk/library



Section 6



www.cic.org.uk,
www.ogc.gov.uk

4

Develop and communicate a clear brief

The project design is the answer to the detailed brief – a statement of requirements, which must be clear, otherwise some aspects of design will be guesswork and may deliver an unsuitable result. The detailed brief starts as a vision and outline brief and must be allowed to evolve during the early part of the project. In its final form, when detailed design is to be carried out, it evolves into a detailed brief. The detailed brief captures all the necessary information, the wider vision and the specific activities and operational requirements, as well as the desired image, atmosphere and quality, and criteria for site selection where appropriate. It should not, however, seek to prescribe how to meet your objectives – that is what the design team does.

While you may be able to write the first version of the brief, you may not have the experience in-house to be able to define it fully. It is advisable to get independent expert advice from someone with design experience to take it to a level of detail from which a final design can be created. This role is sometimes referred to as a client adviser. Different types of advice may be needed at different stages from a variety of specialists.

The brief may start as a simple general statement of the project objectives. It should incorporate the views of all the key

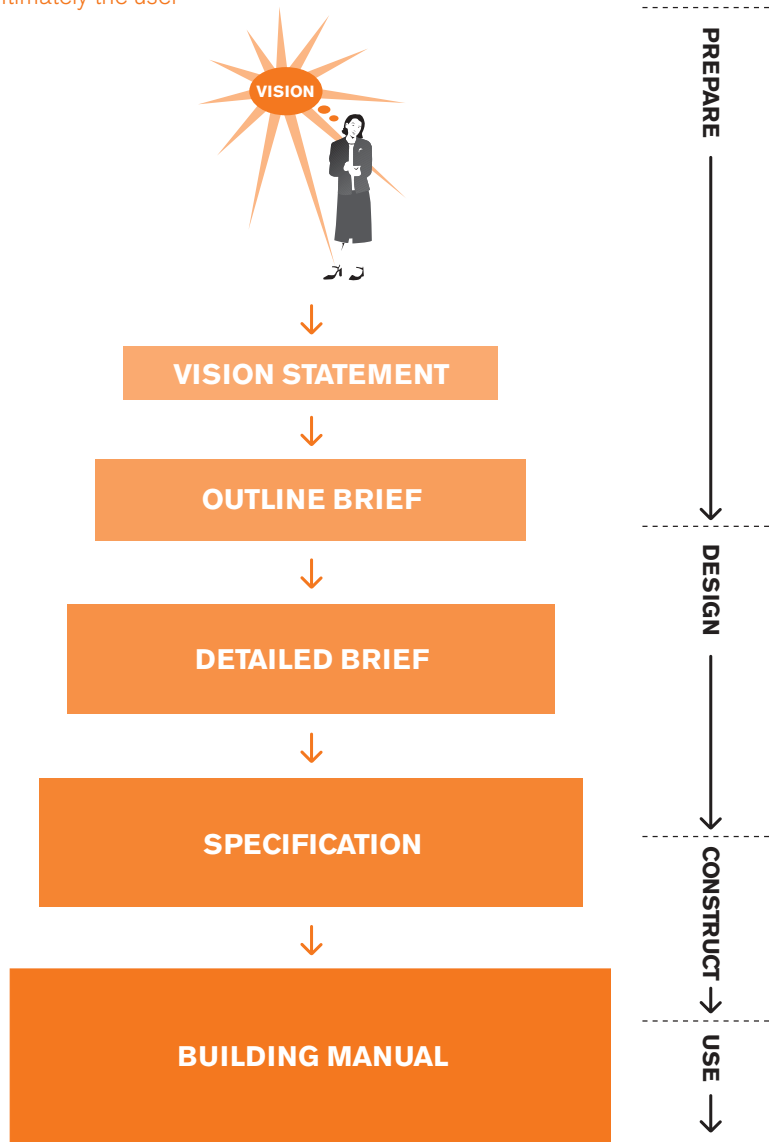
stakeholders, including the future users of the building. It should deal not only with the spaces that will be needed for the intended use but also the looks, style, durability and other characteristics of the materials, details and systems to be used. The effect of potential future organisational changes must also be considered. Creating a brief is an iterative process that may go to and fro a number of times. A good architect will probe and question the brief to find the best answer to your needs.

Background material in the brief needs to be clearly organised to support important information about your needs. You should retain responsibility for seeing that the brief describes unambiguously and clearly what you want the project to accomplish. You should review it, be sure it says what you want it to and sign it off at outline and detailed stages. If your own brief is not clear to you, no one else will be able to use it effectively.

Once you reach a detailed stage all your requirements should be specified clearly, vague statements are not helpful. Many people will be involved in explaining what is required and a lot of data may need to be collected. You can create a group of specialists and representatives to co-ordinate specific bits of the brief and channel information between the users or stakeholders and the project team. If you distinguish clearly between 'wants' and 'needs', the design team will know which things are non-negotiable, which are desirable but not essential and will understand what added features or qualities would enhance the project for you.

Fig 5: **The stages of a brief**

The vision must be part of the brief which develops to inform first the designer and ultimately the user



5

Make a realistic financial commitment from the outset

You need to be realistic from the outset about project costs and what you are prepared, and able, to pay. This involves having a clear idea of budget constraints and the full range of capital, management and whole-life costs. Cost should include land acquisition, professional fees, furnishings and equipment and organisational change resulting from changed premises, as well as ultimate disposal costs. Where innovation is called for, the development or prototyping costs this may involve should be considered from the outset. Robust risk assessment and management processes should be used to understand and control these costs.



As part of your benchmarking work try to find out the actual cost of comparable projects you admire – or at least make an estimate. Do not be too worried at this stage if your budget does not seem to stretch to these aspirations. It will be important information for the design team and could act as a spur to innovation.

The project may involve high costs and more varied and complex sources of funds than you are used to, especially if your organisation is experiencing growth and change. There may be extensive application processes, or conditions about association with another organisation. All these financial issues should be set down clearly from the start and a business case created for the project based on the real costs and benefits, including the cost in management time.

Although the early stages of a project represent a small percentage of the overall costs, it is often then that cash flow is difficult, as the main funding may only become available after designs have been agreed and planning permission given. You should plan carefully, ensuring that a realistic budget is available for each stage of the project.

When the initial designs are ready the client almost always needs to make hard choices to remain within the available budget. During this process of value management or value engineering, it is essential that you don't damage the design proposal, particularly those elements that may seem dispensable but which will actually make the building a special environment for those who use it. The basic rule is to go for the best you can afford.

The costs in use for a new building may be very different to those for your current building. This is not just because the building is different, but because your project may be the result of a change and development in your organisation, which may be intensified by the need to manage a new, expanded facility. This change has a cost too, which must be part of your financial equation. Organisational change requires considerable management input and this must not be neglected. Occupying a new building planned to serve a new organisational structure will not by itself

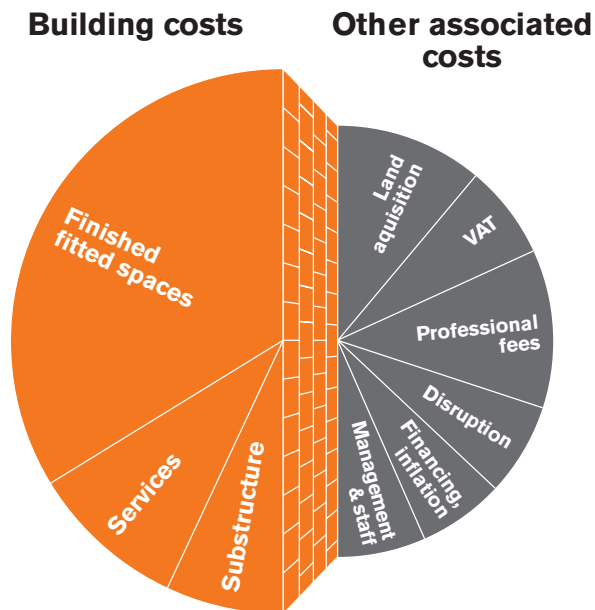
bring about organisational changes and may do the reverse if communication and training have been neglected. Without forward planning, what could be an excellent solution may cause discontent, be unable to support the organisational needs and be judged a failure.

Of the total budget often less than two thirds is spent on the visible building. It is important to get expert advice on costs, taxation and financial provision for potential risks. →

←
Section 1.5 Watch points

Fig 6: Building costs and other associated costs

A large part of the budget is spent on things that are not part of the visible finished building



6

Adopt integrated processes

You, the client, are one of three major players in the project, the others being the design team and the construction team. The person or organisation that will later manage and maintain the building, possibly a member of your in-house team, needs to be included too, though in PFI and other forms of procurement this may be an external organisation.

In choosing your team members, you need to ensure that they are prepared to work together as an integrated unit, committed to achieving your goals and to operating in a collaborative, non-adversarial way. On the other hand, you will want to ensure that they are committed to you as client first, and to each other second. You can use a suite of individual contracts to create the right set of relationships as described in Section 2.7. One way of checking this out is to ask how the team members have demonstrated their commitment to the principles of Rethinking Construction, the Government's initiative for improving construction performance. An integrated team and work processes will help see that good design results, that the project is carried out efficiently and does not waste time, and that the costs are contained to meet the budget.



*Managing Successful
partnering* OGC
www.ogc.gov.uk

Some procurement routes should make it easy to integrate design and construction by making a single party responsible for both. These routes, such as design and build and prime contracting, integrate construction skills very early on at the design stage. In the case of PFI, often management and maintenance understanding is also introduced early. You can also use more traditional methods of procurement and still follow an integrated approach. What is needed above all is a climate of co-operation and trust in which shared goals lead to best value for all concerned and where construction knowledge and building management skills are used to best effect during the design development.

The right procurement route for the project must be chosen. Projects using integrated processes are often described as 'partnering' projects. Partnering can embrace the whole team or be part of the structure of the design and construction teams. Partnering can be over many projects or just for a one-off relationship. It involves establishing a working arrangement with team members that emphasises fairness, openness and feedback for continuous improvement. The development of joint goals and good working processes may need support from a facilitator in the initial stages. <<

If you are new to construction projects, when choosing a suitable procurement route you should seek specialist advice from a client adviser with experience of delivering projects, such as a project manager or a lead consultant. Choose a route appropriate to the type, scale and complexity of the project, your needs and in-house skills.

The wrong decision can jeopardise success. The lead consultant/project manager can provide advice about this in consultation with the other members of the design team. →→

If certain aspects need to be designed by specialist subcontractors, their appointment should be co-ordinated with that of the main architect or designer.

You will certainly need proper legal advice about contracts to use for the different team members, including any signed with professionals at the very start of the project. You should use standard forms of contract and make sure that they 'interlock' and cover all the different roles and tasks so that nothing is left out. →→



“Just as client action must support the development of integrated teams to achieve maximum value and optimum performance, the creation of value should be a focused objective of integrated teams which include the client.”

Sir John Egan *Rethinking Construction – Accelerating Change*, 2002



Section 2.6 and
Work sheet 1
cover selection of
procurement routes



Section 2.7

7

Find the right people for the job

It is skilled people working together in a co-operative team who deliver a great project and the success of your project will depend on having great teams, both inside your organisation and to design, cost and construct the project. Many people may be involved and they must all have the right skills and be able to work well together and with you. One of your most important tasks is to select these people and organisations, define what you expect of each and manage your relationships with them so that they work effectively. You need to put at least as much work into choosing the right people for your internal and external teams and managing them well, as you do into discovering inspirational projects and best practice benchmarks.

Your in-house team requires people who understand your needs and someone to act as internal project manager. If you are new to the world of construction you will probably also want to include someone with experience of designing buildings. This person can give independent advice and help to set the project up, help choose design and construction professionals and assess how far design proposals really meet your needs.

Professionals whose expertise is vital for construction projects include architects, structural engineers, services engineers, civil engineers and landscape architects. Design quality depends on good design skills within these professions.

Construction skills, costing expertise and a wide range of specialist knowledge will also be needed ←←. These various skills are interdependent and their integration into a well managed team is important for success. Early involvement of the key players, designers, construction teams and specialist suppliers, is important.

Projects can be procured in different ways that affect the approach to team selection. Fair, thorough, clear and transparent procedures are essential for any competitive selection. In all circumstances some homework, to find out capabilities and past performance of potential consultants and contractors, will pay dividends.

The teams involved will fluctuate in size and composition over time to meet the evolving needs of the project. Roles, responsibilities, lines of communication and rules governing team relationships must be clear. The leadership of the design and construction teams is as important as that of the in-house team and depends on having someone with experience and management skills. You need a clear decision-making structure and should explain it to all those involved to avoid misunderstandings. Problems can arise from an inadequate understanding of the respective roles of consultants or gaps between them – your lead consultant can advise you on these.



Section 2.8

Projects are generally structured around regular meetings for the design and construction teams. You may want regular meetings with your external team to keep you updated as the project progresses and to give you an opportunity to foster co-operation. Sometimes the designer is part of the builder's team (as in the various forms of design and build). In this case you should retain an independent adviser with design skills on your in-house team throughout the project, as well as seeking open discussion of design and quality issues at appropriate points in the process.

“For better results the potential client will have to do a good deal of homework”

Blackmore, Courtenay, *The Client's Tale*, RIBA Publications, London, 1990

Box 6: Keeping your team productive

- encourage and enthuse team members
- help keep the project on track – manage the budget, monitor time and quality
- hold only essential meetings – efficiently chaired
- agree procedures for programme, cost reporting and change control with the lead consultant
- be generous with praise
- avoid 'contractual' or adversarial language
- criticise constructively, in private
- celebrate milestones passed and team successes
- keep people informed about any emerging difficulties
- tell staff about progress at key moments
- always keep the 'big picture' in view and ensure all details match the vision



8

Respond and contribute to the context

Physical context

Your project is being inserted into an existing context and has great power to improve the local environment. Many projects can and should play a vital role in the economic and social regeneration of their neighbourhoods. Archaeology, ecology, arboriculture, neighbours' rights of access and light, historic buildings or landscape may be relevant.

The project process should start with an assessment of the context and end by enhancing it, otherwise to some extent it will have failed. You have an opportunity to add value to the neighbourhood and in doing so to create a building that itself has greater value over time.

The urban fabric or open landscape setting for your site is not a constraint; rather, it presents an opportunity to develop a solution where the whole is greater than the sum of the parts. Your design team will be concerned with building mass, bulk, style and materials and how these impact on neighbouring buildings, as well as with routes to and around the site and vistas across wider areas. Simply copying past styles does not represent respect for a historic environment and is to be avoided. Your project should accord fully with the principles of good urban (and rural) design set out in government's planning guidance. ←←

As well as a landscape architect, you may also want to include an artist in the team from an early stage to maximise the opportunity to enhance the public realm. 'Public art' involves artists in the conception, development and transformation of a public space or building ←←. Where development is of a significantly larger scale you may need to consider masterplanning and urban regeneration issues. CABE's *Creating Successful Places – A Guide for Masterplanning Clients* provides more information about commissioning masterplans.

Stakeholders

Your project will affect the community at large and future generations in various ways. Some people are stakeholders with a direct interest, such as funders, users and neighbours. It helps to work out as soon as possible who these are, their concerns and how to communicate with them. Most projects aim to house people and their activities so their needs must be central to the aims of the process.



12

→→

Box 7

→→

Section 2.8.6

Sometimes the number of stakeholders may be small and communication process simple, but often some groups need special attention while others change and fluctuate. In controversial, large, complex or lengthy projects such as a major air terminal, communication with stakeholders involves considerable time, cost and skills.

In some projects, communication with an outside partner organisation is critical to the entire design and development process, such as when the client is a small player in a larger project or when the delivery of a project is to be managed by a local authority or a private developer. In these cases it is essential to communicate in a way that maintains the client's status as a key stakeholder whose needs must not be sidelined in the wider project.

The wider community

The general public, the passer-by in the street or the once-in-a-lifetime user is also affected by a construction project. Appearance, how the public and users interact with it, health and safety aspects, accessibility and economic impact are as much the concern of the wider community as of the immediate client and planned users. This creates a significant but exciting responsibility. Building projects can awake new interest in the work of an organisation or the service that it provides and bring a renewed sense of pride and ownership to the community that will use the building or space. The question is how to harness this positive force for the good of the project.

Inclusive design that enables access for all, also part of a sustainable approach, is now supported by legislation. The Disability Discrimination Act 1995 obliges organisations to meet the needs of all staff and public users in new construction projects. Your design team will be aware of such requirements and your own commitment to accessibility will help them achieve the best solution for all.

Box 7: The principles of good urban and open space design

A well-designed place has the following qualities:

- Character – a place with its own identity
- Continuity and enclosure – a place where public and private spaces are clearly distinguished
- Quality of the public realm – a place with attractive and successful outdoor areas (that is, areas that are valued by people who use them or pass through them)
- Ease of movement – a place that is easy to get to and move through
- Legibility – a place that has a clear image and is easy to understand
- Adaptability – a place that can change easily
- Diversity – a place with variety and choice
- Good microclimate – a place that fosters good local outdoor environment – sun, shade, wind

CABE, *By Design*, London, 2002



Commit to sustainability

A commitment to sustainable development should underpin the brief. This will improve the value and viability of your project. There is a lot of rhetoric around the concept of sustainable development but there are some very practical considerations that you cannot

ignore; the location of a building, its design and construction, how energy is provided and used and the way the building will be used into the future.

A design that takes this holistic approach will save you money in the long run by considering the long-term costs of the building over its lifetime rather than just construction costs. At the same time it can create a valuable asset by demonstrating real efficiency and future flexibility. You may want to use mathematical and computer

Box 8: Sustainable principles must be taken into account in briefing and design

“Development which meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Brundtland (Report to WCED) 1987

“At its heart is the simple idea of ensuring a better quality of life for everyone, now and for future generations. Four objectives for meeting sustainable development:

- 1 Social progress which recognises the needs of everyone*
- 2 Effective protection of the environment*
- 3 Prudent use of natural resources*
- 4 Maintenance of high and stable levels of economic growth and employment”*

DETR A Better Quality of Life, May 1999

“Economic sustainability improves profitability by using your resources more efficiently.

Environmental sustainability improves the management of natural resources none of which are in infinite supply, and reduces the impact of emissions, effluent and waste.

Social sustainability improves relationships with all the ‘stakeholders’ in your project from inception to demolition... By recognising and harnessing the interests (of your workforce, suppliers and immediate community) your project will be more likely to move smoothly to satisfactory completion and be viewed as a welcome addition to the local landscape.”

CIC, *Constructing for Sustainability: A Basic Guide for Clients and their Professional Advisers*, 2003

modelling to examine the building's energy and whole life performance early on in the concept and design development, using specialists in this area.

Sustainability targets will become increasingly strict as government concern for sustainable design, reflecting that of the European Union, is backed up by policy, such as the tightening of Building Regulations and the imminent obligatory energy labelling of buildings. You should set targets based on recognised measures and use them in your brief, when evaluating the quality of a design, in value management exercises and during feedback.

The whole team must be committed to working with the sustainable agenda. Considering whole life costs requires all the team to work in a co-ordinated way. For example, energy efficiency is a function of the services' design as well as of the overall building concept, which includes orientation, whether windows open and how user-friendly the control systems are. Understanding how the building will function and be managed, where surface water will go, what users are likely to do about lighting, ventilation and recycling waste all need to be incorporated into the design approach. →




Section 2.4.3



10

Sign off all key stages

Every project has key stages, milestones, when agreement must be reached so that the next stage can go ahead on a firm basis. A formal agreement is the clearest way to do this and is called 'sign-off'. The Office of Government Commerce (OGC) calls these sign-off points gateways and cites six . Additional decision points at increasing levels of design detail are described in the Achieving Excellence guidance documents. Changes made after sign-off points are likely to involve additional cost or delays, as the process will have moved on. You, as the client, have to be involved in agreeing at all key stages that the part of the project being considered is, in your view, complete. You will be the one to suffer the extra cost or delay if you change your mind at a later date. Because of this you need to be sure that you have fully understood the implications of all documentation and if necessary ask for further explanations and clarification.

Some things, such as the brief and the design, develop gradually and may need to be signed off several times at increasing levels of detail. Others, such as the business case, need to be revisited to check whether assumptions and circumstances have changed and should be signed off each

time as a complete record of the prevailing situation. Eventually, when the project is finished and ready for use, evaluation and feedback should be undertaken and the results will need to be formally accepted if they are to have beneficial effects.

A very important sign-off is the point at which a complete set of drawings has been prepared along with the specification describing materials, finishes and relevant construction processes. After this there is little scope for any changes. It is valuable for every group of specialists on the professional team to sign off the drawings as a complete set. If something is missing at this point there is a danger that it will have an impact later, resulting in unplanned adjustments which will have cost and time consequences.

An aspect of each sign off is that the 'health' of the project is reviewed, to see that it is progressing appropriately, the business case is still valid, expectations are being met and the people and processes necessary for the next stage are in place. Any things that could be improved and benefit later stages of the project can be identified for action. As the project reaches completion these sign-off points become even more focused on feedback and capturing information useful for subsequent projects.

→
Gateway Review pack





Section 3.5

1.5 Watch points

While the ten keys to success will help you understand the positive opportunities and how to make the most of them, you may also find it useful to consider what could go wrong during this complex process and

to understand the potential impacts and what mitigating action to take – be forewarned and therefore forearmed. The list of 'watch points' below should help in this respect and a risk management strategy can limit any potential damage. ←←

Box 9: Watch points in a construction project

Client team

- hidden agendas, unexpressed conflicting aims in different parts of the client body or between parts of the delivery team
- design champion or sponsor with no time, no power or misunderstanding their role
- key decisions not based on proper balance between design quality, time and cost
- inability to assemble and check all the necessary data for a full brief
- misunderstanding of the design proposals
- not enough time devoted to the project when needed
- over-optimism about move-in dates
- poor detailed brief or unclear objectives
- not enough funds when needed (eg fiscal or exchange rate changes, grant draw-down)
- change of client circumstances or senior personnel
- limited aspirations/horizons

Procurement

- wrong route selected (this is a major cause of failure)
- contracts not suitable
- contracts not covering all aspects fully
- delays, changes in associated projects

Design

- new untested design ideas without proper regard to research and development
- flawed technologies used
- construction team not involved early enough
- well-known solutions used badly, eg because of lack of feedback
- insufficient attention to the open spaces flanked by the building
- insufficient attention to the local context and stakeholder needs
- problems with supplies, eg a single source for essential material
- problems fitting new equipment with old, eg extending heating system
- fit out and design poorly integrated leading, for example, to inefficient use of space
- 'behind the scenes' spaces overlooked, eg inadequate staff areas, insufficient storage
- excessive running costs

Project team

- lack of integration in the team
- capability of consultants, designers or contractors not matched to the project
- design team not experienced in translating concept to real buildings
- industrial relations problems
- poor project planning and management
- poor communication within teams
- failure of communication between teams: design and construction, or contractor and subcontractors
- personality clashes
- team members lacking professional indemnity insurance

Approvals and context

- legislative changes
- delays in planning permission or other approvals
- permissions refused
- local opposition

Site / construction

- problems with ground and foundations
- important archaeological finds on site
- difficult weather conditions
- lack of quality control
- a key supplier or contractor goes bankrupt
- inadequately trained labour
- insufficient site supervision on client's behalf
- building not properly finished
- services and systems not properly commissioned

1.6 Delivering a successful project

1.6.1 Understand the project background

Projects never occur in splendid isolation. They are often born out of years of dreaming and planning. There will always be ideas, policies and proposals that should be noted at the outset, such as an estates strategy, business organisation or reorganisation, a national policy for service provision in a particular sector, a planning gain agreement with a developer, supplementary planning guidance or the policies in the local plan. Your design team has to understand all these issues and respond in an organised way. In some instances, where the change or scale of development being proposed is large enough, a masterplan may be required to provide a framework for the project. ←

1.6.2 Getting started

It is important to give yourself the time and space to confirm that a construction project is the right thing to do. Will some other action serve the same purpose and give equally good results? If the answer to this is yes, then this guide can be put aside till next time. Retreating from a building project is cheap at this early stage but it gets increasingly expensive as time moves on. An initial formal document – which many descriptions of project process call a ‘statement of need’ – on which the project is based, will need to be agreed by the board or appropriate senior

members of the organisation. This is then the basis for rigorous examination of what the best course of action will be.

A construction project may seem the appropriate solution but before embarking on one you should consider some fundamental questions to help clarify what sort of project is really needed:

- What are the problems with the current premises/situation?
- What would happen if there were no project?
- What imaginative alternatives are there to a building project?
- Could changes to the building or place be avoided by modifying your organisation’s activities?

The way in which these questions are best investigated is through an option appraisal – an examination of some reasonable possibilities. Initially a wide range of options should be considered to set parameters for a suitable solution. These should be narrowed down to keep the process manageable, always keeping the ‘do minimum’ or ‘do nothing’ option on a short list for detailed review. The short list of options should then be evaluated, considering the costs and benefits using discounted net present value (NPV) and taking account of possible risks. Costs and benefits that are not financially quantifiable should also be considered.

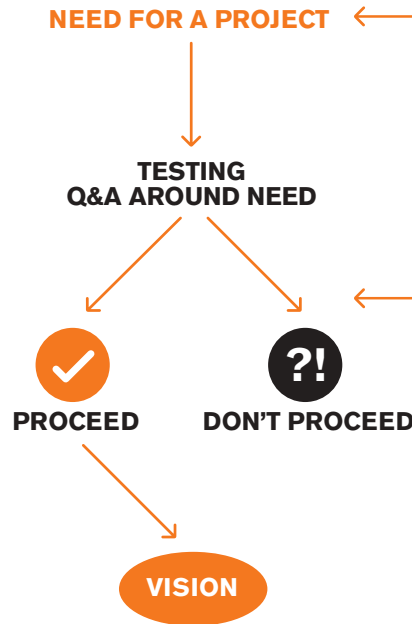
→
CABE *Creating Successful Places – A Guide for Masterplanning Clients*

Research may be needed to establish the facts and figures for the various options. The outcome of the evaluation allows each option to be assessed against common criteria and the best one can then be developed into a potential solution. If this process shows that a new building or major refurbishment is the best solution, then you are ready to move on to the next stage of defining the aims of the building project and considering how to structure and manage it.

Public projects should follow processes set out in the HM Treasury *Green Book Appraisal and Evaluation in Central Government*, 2003 which contains useful information about how to structure and carry out appraisals and evaluate options. This document also indicates where these techniques are relevant to the OGC Gateways and contains discount rate information to help in the calculations. →→

Fig 7: Do you need a construction project?

Check your real needs and the business case before going too far with a project



←←

The current version of the Green Book is available on the Treasury website www.hm-treasury.gov.uk/economic_data_and_tools/greenbook.

The Gateway Process is mandatory for civil government projects and this, and the Successful Delivery Toolkit from the OGC, provide useful information for managing construction projects. www.ogc.gov.uk/sdtoolkit/



1.6.3 The four stages of a construction project

When you are pretty sure that you want a construction project, then the next sections of the guide lead you through the four main stages of the process:

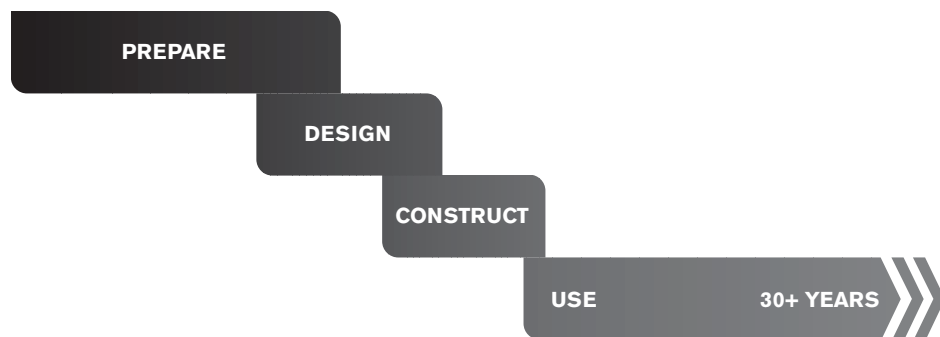
- **Prepare:** you are at the heart of the project, responsible for getting it started
- **Design:** an integrated design and construction team contributes their wide range of skills
- **Construct:** involves the process on the building site
- **Use:** when you take on the use and perhaps the management of the building and the rest of the delivery team diminishes and eventually vanishes

Each of these stages needs different types of client activity and involvement. For different procurement routes the stages relate to each other in slightly different ways, but all four stages can be identified in all projects. In some cases they overlap, with one starting before another has finished. For example detailed design by specialist subcontractors often only takes place once construction has started on site.

1.6.4 Comparison of project structures and their stages

A range of advice and information is available about the four stages of a project. Box 12 compares different project structures and shows their relationship to the stages in this guide. Each of the sources in Box 13 contains detailed information that may be useful to review before beginning a project.

Fig 8: **Four stages of a building project**
The stages may overlap by different amounts in different types of procurement





Section 2



Section 3



Work sheet 4

Box 10: The four stages of a building project**Prepare ←**

This stage extends from the initial idea through to the point where a project process has taken shape with a defined outline brief, a business case, an internal client team, an external project delivery team (designers, constructors, managers) and a decision-making structure.

- Ideas of how the project may develop should be clarified now.
- This is the stage at which the client's in-house team needs to put in most effort, has most direct influence and is likely to need the most support.
- Many vital decisions, fundamental to the success of the project, are taken about choice of people and organisations to involve and employ and the procurement route.
- Funding may not be secure, yet costs are incurred for all the preliminary investigations and initial concept ideas. Therefore, realistic funds need to be identified for this and the design stage.
- For some forms of procurement, notably Private Finance Initiative ← (PFI), early client input is especially key as it is the only opportunity for the client to set the required 'outputs' and project agenda.

Design ←←

This stage takes all the ideas forward to the start of construction.

- Designers and, increasingly in many procurement arrangements, contractors and sub-contractors, have major input at this stage.
- The first concepts are translated into drawings and models to simulate the final built project. These are tested against the client's aims and business case as well as with planning requirements.
- Consultation with stakeholders, users and the community, as well as with relevant authorities, should start soon if not already underway.
- Specialist subcontractors and/or manufacturers will provide much of the design input as the project progresses and need to be brought on board early.
- The client is central to approving and signing off aspects of the work and clarifying needs in more detail. Planning to fit out the building should start.

Construct →→

Few elements of the design can now be changed.

- By this stage funding is usually unlocked to cover the rapid expenditure on materials and site works. Controlling the flow is now the issue and the client must ensure the flow of funds required is available. →→
- The client role is reduced as most decisions have already been taken, but you should monitor what is happening on site.
- Much additional specialist detailed design is worked out during this stage but the client need not be involved with all the decisions.
- During the construction period the client must actively prepare for moving in, and towards the end of this stage may need to arrange for the installation of specialised equipment.

Use →

The project is ready for move-in and use.

- Plans for this stage must be made earlier in the project, so that they can be fine-tuned when the building is about to be handed over for occupation.
- The project needs to be evaluated and longer-term feedback arranged on how the building performs.
- The building's maintenance and management systems must be put into practice and any modifications required have to be decided.
- The continual process of keeping the building or open space useful, usable and attractive in a rapidly changing world has begun.

←←

Section 4

←

Section 5

←←

In PFI projects initial funding is provided by the contractor/developer team and client expenditure is spread throughout the life of the building

Box 11: Client team activities at each stage



Prepare – major involvement

- articulate the vision to communicate to different team members
- set up the selection process for any external independent client adviser(s); help in their selection
- co-ordinate the in-house and client adviser(s) input to assessment of need and options, business case and budget
- present information to board (or chief executive)
- lead in preparation or commissioning of feasibility studies and brief
- set up structures for managing the in-house and project teams
- ensure that users and stakeholders are involved and consulted
- ensure decision makers understand their responsibilities and have enough time, resource and information
- commit to build
- plan to fit out the building; decide if a different team will be needed for this
- start planning for occupation, especially if organisational change is anticipated



Design – active participation

- co-ordinate, communicate and foster team work
- ensure any changes in circumstance are evaluated and taken into account
- arbitrate in disagreements on client side
- sign off a complete brief and specification that fully meets your needs
- approve any changes in scope and seek higher approval if appropriate
- ensure compliance with all relevant legislation
- sign off a final set of drawings, agreed and accepted by all members of the team



Construct – keep in touch with design team, contractor and site progress

- arrange payments, ensure that funds are in place for each stage
- defend design quality – as time and budget are used up this may come under pressure
- finish preparing for occupation – ensure people have been appointed to manage building and systems



Use – support users on move-in and set up ongoing monitoring

- accept the building at handover if it complies with drawings and specifications
- take over all documentation; be sure it can be 'read' if computer-based
- settle financial aspects of the project
- prepare and manage launch or other welcome for staff and users
- make sure building management knowledge has been passed to the right people
- use the building positively to help improve function for the organisation and users
- carry out post-project and post-occupancy evaluations; absorb results, take action if needed
- monitor and fine-tune to meet low-energy and other targets

Box 12: The four stages applied to different project structures

CABE guide stages	RIBA and Landscape Institute stages	OGC Gateways
PREPARE	A Appraisal B Strategic briefing	Business strategy Establish business need 0 Strategic assessment 1 Business justification 2 Procurement strategy 3 Investment decision
DESIGN	C Outline proposals D Detailed proposals E Final proposals F Production Information G Tender documentation H Tender action	Decision point 1 - Outline design Decision point 2 - Detailed design
CONSTRUCT	J Mobilisation K Construction to practical completion	4 Readiness for service
USE	L After practical completion M Feedback	5 Benefits evaluation
References	RIBA <i>Architect's Plan of Work</i> RIBA Publications London 2000 Landscape Institute <i>Landscape Consultant's Appointment</i> London 1998 www.riba.org	OGC <i>Gateway Review Leadership Guide</i> OGC within <i>The Successful Delivery Toolkit</i> . www.ogc.gov.uk

PFI procurement for Local Authorities	CIB Key Project Activities	NHS Conditions of Appointment
<ol style="list-style-type: none"> 1 Outline business case 2 Feasibility 3 Reference scheme 4 Authority decision to proceed 5 OJEU advert 6 Expressions of Interest from bidders 7 Pre-qualification 8 Long listed bidders invited to submit proposals 9 Bidders short-listed 	<ol style="list-style-type: none"> 1 Getting started 2 Defining the project 3 Assembling the team 	<ol style="list-style-type: none"> 0 Outline business case Option appraisal 1 Full business case leading to approval Initial brief
<ol style="list-style-type: none"> 10 Invitations to negotiate documents issued 11 Tender evaluation 12 Negotiation, Preferred Bidder appointed 13 Contract close 	<ol style="list-style-type: none"> 4 Designing and constructing 	<ol style="list-style-type: none"> Outline design 2 Design <ul style="list-style-type: none"> - Full brief - Sketch design - Detailed design - Planning permission - Tender documentation - Pretender estimate 3 Tender and Contract <ul style="list-style-type: none"> - Select tenderers - Invite/examine tenders - Contract documents - Contract programme - Post tender estimate
<ol style="list-style-type: none"> 14 Construction commences/ site activity 	<ol style="list-style-type: none"> 5 Designing and constructing 6 Completing and evaluating 	<ol style="list-style-type: none"> 4 Construction and equipment supply Execution and control of works Health and safety file and plan 5 Technical commissioning and handover Technical commissioning team Inspection and testing Records Statutory and construction certificates
	<ol style="list-style-type: none"> 7 Completing and evaluating 	<ol style="list-style-type: none"> 6 Post-completion 7 Operational Commissioning 8 Post-project evaluation
<p><i>Achieving quality in Local Authority PFI building projects – 4ps guidance for local authorities</i> www.4ps.co.uk</p>	<p>Construction Industry Board <i>Constructing Success: Code of practice for clients of the construction industry</i> Thomas Telford London 1997 or www.cic.org.uk NHS Estates</p>	<p><i>Agreement for the appointment of architects, surveyors and engineers for commissions in the National Health Service (1995 edition)</i></p>

Box 13: Information about the different types of project structure

- The Royal Institute of British Architects (RIBA) has developed detailed descriptions of the tasks normally undertaken by different members of the project team, including the client, at defined stages during design and construction ←. Many other bodies relate their material to the RIBA stages. The plan indicates many key moments of decision-making and sign-off during the design and preparation of construction documentation.
- The OGC has developed the Gateway Process, mandatory for all government department procurement projects. The Gateway Process examines a project at defined critical stages, or gateways, in its lifecycle to provide assurance that it can progress successfully to the next stage, highlighting any areas of potential concern to the project owner and team. There are six Gateways during the lifecycle of a project: four before contract award and two at service implementation and confirmation of the operational benefits. The process emphasises early review for maximum added value.
- Achieving Excellence in Construction is the Government's strategy for improving its own procurement of construction projects. The supporting guidance sets out best practices that central government clients and those funded from central government should follow ←.
- The Construction Industry Board (now absorbed into the Construction Industry Council) prepared a short document for clients after the ←← 'Latham Report' was published explaining how clients fit in with the new co-operative ethos being encouraged for the industry.
- The series of actions required when undertaking a PFI project is set out in guidance for local authority projects. It is similar to material in other documents about PFI. ←←
- NHS Estates has descriptions of the stages that are expected in commissions for the NHS. The list has been condensed from their document *Agreement of appointment of architects, surveyors and engineers for commissions in the National Health Service*, by NHS Estates 1995 edition.

→→

Section 6 Contacts &
References

→

The Architect's Plan of Work,
RIBA

→→

Work sheet 4

Successful Delivery Toolkit
www.ogc.gov.uk

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cabe

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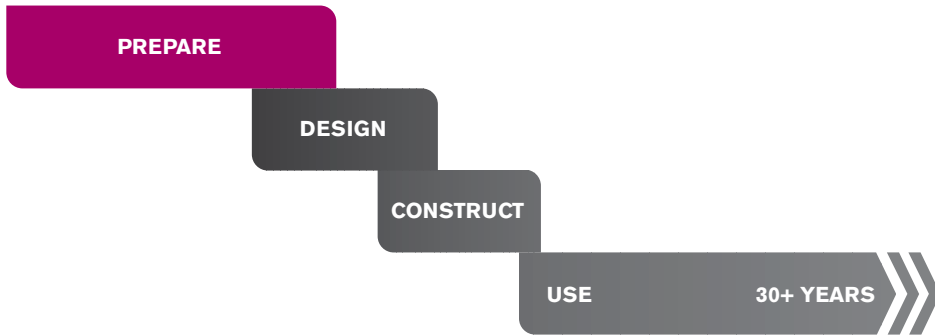
Use the cursor keys to
navigate between pages

Press Escape
to view in window

2 Prepare

Preparing to design and build a project is the most intense phase for the client. This is when crucial decisions are made, objectives and standards are set, a brief is developed and tested, a team

and project processes are put in place and relationships are built upon which the whole project is founded. By the end of this stage many of the main parameters of the final project have been set.



Box 14: Client tasks during the preparation stage

Establish aims and communicate the vision

- define overall aims and objectives – this is likely to need specialist assistance
- confirm that a new building is really needed
- identify stakeholders
- develop and communicate the vision

Build the in-house team

- choose a design champion with suitable authority
- choose a project sponsor with the right skills
- decide whether a project manager is needed
- review other skills available in the client body
- plan the time needed for internal staff to play their roles adequately
- select client adviser(s) for design and other functions

Do feasibility studies and prepare a business case

- commission a feasibility study
- prepare the business case and seek funding
- prepare a budget and cost plan

Develop and test the outline brief

- gather information, become an informed client
- prepare an initial brief linked to the vision
- communicate with and consult stakeholders

- decide quality and performance levels
- consider long-term flexibility
consider risks, carry out sensitivity analyses
- create a project management structure
- consult full range of users (without over-elaborate procedures)

Choose a site or a building

- consider suitability of the location
- check whether staff and users will be happy to go there
- consider any effect of the location on the business case
- consider how the project will affect the locality
- review the size, form and capacity of the site
- review access, security, urban context
- consider flows of people, materials and traffic during construction and after occupation starts
- consider approvals required and whether planning permission or other approvals present any difficulties

Select the procurement route, contracts and the delivery team

- decide the general procurement route, consider specific procurement options
- decide whether urban design, open space or other specialist advice is needed
- select the team(s) with the help of external professional advice if necessary
- engage a planning supervisor at the appropriate stage (to conform with CDM regulations)
- plan the involvement of any artist(s)

2.1 Establish aims and communicate the vision

2.1.1 Create a vision

At the start of the process the client draws up aims for the project in the form of a 'statement of requirements' (SOR) or 'statement of need' (SON) →→. Initial overarching aims are often referred to as a vision statement, which may well be agreed before there is any real concept of a physical project, certainly before there is much of an in-house team. Key ideas should be put on paper even before looking for funding or a client adviser. A simple set of aims and requirements, agreed at the highest level within the client organisation, will provide a central reference against which to measure how well the project meets its aims.

This simple statement should clearly communicate the intention to seek excellent design and all it implies for the project.



In due course the vision statement will be translated into an outline project brief, a statement of what the project should achieve. This document will evolve and grow with the client's knowledge, ultimately becoming the detailed detailed brief, developed with the input of the design and possibly also the construction teams during the design stage. Where projects are small and simple, the client's initial vision and the outline brief may merge into a single document.

Box 15: How client aims are recorded

1 **The vision statement** is a simple statement of objectives, needed for early consensus to be able to start the feasibility and budget checks and as a constant reference point throughout the project. The vision develops alongside a 'statement of need' and design quality needs to be part of it.

2 **The outline brief** is more detailed, setting out broad requirements. It should state client objectives but not how to meet them. Advice from someone with design knowledge is important even at the early stages of developing a brief. This brief is developed throughout the first phase of the project by:

- consulting within the client body
- consulting stakeholders
- preparing a business plan
- testing ideas with feasibility studies

3 **The detailed brief** is needed for the design stages as a reference document for the whole project team. At this stage the design team assumes a level of 'ownership' of the brief →. The client should be warned in advance of the important moment when the detailed brief will be 'frozen', after which changes must be avoided. The exact timing of this varies according to the procurement route.



Box 14 and Section 1.6.2



Section 3.1



2.1.2 Identify stakeholders

Stakeholders in any project need to be identified early on and their needs must be understood and incorporated from the start. Consultation will help reveal what they need and enable them to develop their understanding of the project. Stakeholders could include:

- users of the building, including staff and visitors
- the funding or lending organisations with needs reflected in the aims of the project, demanding a return on capital, or expecting a level of service to be provided to the public
- the end users – staff, patients, students, the public, local residents, artists, etc
- neighbouring projects
- other clients, designers and contractors in adjacent schemes or ones of which the project is a part
- local authorities and statutory bodies and organisations from which approvals are needed
- national stakeholders such as government and representative bodies
- others delivering related services, eg transport
- the general public who may visit, see the building as part of their daily lives over many decades and, when public funds are committed, have a direct financial connection.

Effective communication with stakeholders may need special attention and can help create positive, rather than antagonistic,

reactions and can sometimes provide new insights. To achieve this you or your team need to contact appropriate individuals and groups, understand and take account of their views – positive and negative – and let them know what you are doing.

Box 16: Stakeholder consultation: aims and methods

Consultation should:

- engage people's attention and focus their interest
- record and consider views, particularly opposition
- help everyone concerned understand the implications for the different stakeholders
- increase understanding of planned organisational changes
- understand potential contribution and provide for a two-way dialogue
- help tap the imagination of others
- manage different groups' expectations
- help people 'buy into' the project
- help keep people realistic about what they expect
- create a more satisfied community at the end

Communication and consultation methods:

- face-to-face consultation
- meetings
- focus groups
- walkabouts or roadshows
- questionnaires
- newsletters
- exhibitions and open-days
- posters
- intranet or internet sites
- the media, especially local newspapers, television and radio stations



2.2 Build the in-house team

2.2.1 The roles and structure

Armed with a vision and the desire to achieve it through an excellent project, the client needs to start the important task of assembling the in-house team.

This team will vary in size depending on the complexity and scale of the project →. Numerous skills are needed and, even for the smallest projects, a number of different people will be involved. Some may come from inside the organisation, some can be employed for the period of the project, while others may be retained as external consultants for part of or the entire project. Where necessary team members recruited internally can receive extra training.

←
Fig 10



As the team grows it is important that individuals understand their role and that there is a clear reporting structure to ensure effective and good decision-making. The various roles are set out individually below although in some projects several roles may be carried out by a single individual →. Although the terms used here are not necessarily used by all organisations, the activities described all need to be carried out by people with the skills and experience described, whatever they are called and however the activities are divided up.

←
Section 2.2.2 - 2.2.7

Fig 9: Client roles

In smaller, simpler projects one person may carry out many roles. In more complex situations and larger projects a number of people will be needed. An independent client adviser is generally part of even the smallest team.

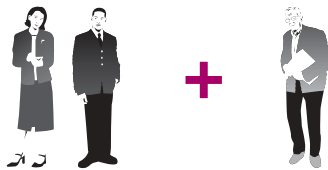
< £500K

The client acts as project sponsor, design champion and project manager. Use an independent client adviser.



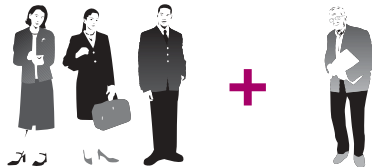
£1 - 5M

The client team probably needs a project sponsor and a separate design champion. Use an independent client adviser.



> £5M

The client team probably needs a project sponsor, project manager and design champion. Use an independent client adviser.



Box 17: Aims of the client management structure

The client management structure should:

- identify the client team roles and who will fill them
- allow for other roles to develop as the project progresses
- set out objectives for each role drawn from the project vision
- define the facts needed at each stage before decisions can be made
- make clear who decides the brief, the budget, how to allocate costs and time
- state thresholds for delegating decisions
- provide for record-keeping, make records of decisions
- set project milestones, agree the key 'sign-off' stages
- have a process for testing and evaluating decisions
- specify a process for resolving conflicts
- plan 'fit-out' processes – installing furniture, equipment and special finishes
- plan for occupation and management of the building
- plan for the process of feedback and fine-tuning a building once it has been handed over



OGC's Achieving Excellence N° 3 *Project Procurement Lifecycle, The Integrated Process*, discusses how to make a plan that covers all aspects of carrying out a project. An electronic template for a project execution plan can be found at www.ogc.gov.uk.
→→



2.2.2 The design champion

Experience has shown the value of an enthusiast, willing to learn about design if necessary, who is able to safeguard design quality on the client's behalf and act as 'design champion'. The summary document which accompanies this guide → provides a useful starting point for a design champion so that they can gain a feel for how they can help achieve design quality.

For some projects, the lead client – who may be the chief executive, the owner, a board member or equivalent – can take this role, possibly combined with other project activities. In others, the lead client may appoint a design champion. In government-funded projects this person may also be the investment decision-maker (IDM) or senior responsible officer (SRO) →. There should be direct communication between the design champion and project sponsor and in some projects they may be the same person.

The design champion should be appointed early on in the project, must retain close contact with the project throughout and always relate what is being proposed to the original vision and aspirations for high quality design. Once the concept of design quality is fully accepted by the project delivery team, the design champion's role is less time-consuming, though never less

significant. In some organisations, including local and central government, champions with a wide responsibility to promote design quality throughout the organisation are appointed. In these situations, the role is not project-specific and the design champions have a long-term opportunity to consider how to achieve best value through top quality and implement this across all initiatives.



available from CABE,
www.cabe.org.uk

Box 18: The design champion's role:

- articulates the vision and the desire for high quality design
- formulates client aims for quality of design and ensures these are clearly stated within the outline brief
- helps to define, check and evaluate quality throughout the process
- if necessary insists on changes to maintain quality
- signs off initial business case and feasibility if there is no project sponsor
- chooses a project sponsor for day-to-day management, if needed



Achieving Excellence N° 2
Project organisation: roles and responsibilities sets out how public sector clients should assign roles and responsibilities for decisions and processes. It also provides alternative names for some roles.
Section 2.2.3



2.2.3 The project sponsor

A project sponsor is needed to represent the client, carry out client responsibilities and communicate with the client body, in effect to be the lead person representing the client organisation. In smaller or simpler projects this person may also be the main promoter of the project, the design champion and the practical leader.

The project sponsor must be given appropriate power, access to the design champion and the lead client and time to carry out the role. For a small, say £2 million, but complicated project, a project sponsor may need to devote 50% of their time to it especially at the early stages. A larger project, say £15 million, could need a full-time sponsor. The project sponsor needs to be forceful, a good communicator, skilled at creating positive team interaction, politically astute, highly motivated and a shrewd decision-maker who can make people believe that the project should, and will, happen. The sponsor should be aware of the needs of all stakeholders and have a direct and open relationship with the interest groups in the client organisation ←←.

Box 19: The project sponsor's role:

- act as 'client' throughout the project, representing the whole organisation
- develop an agreed management structure
- set priorities to meet the vision
- sign off stages as the project progresses
- ask the searching questions of all those involved in supplying and interpreting information to make sure it is clear and relevant
- accept risks that may be implied by options considered/adopted
- communicate with the change management team about implications of the new building

Box 20: A project sponsor should be able to:

- understand the overall mission
- lead and motivate a team
- use the skills of others
- manage
- communicate well in and outside the organisation
- work within budgets
- understand value and risk – sometimes with advice
- know when a decision is needed and when the design champion needs to play a role
- know when a good decision has

→→

CABE, *Creating Successful Places – A Guide for Masterplanning Clients*, 2003



2.2.4 The project board or steering group

In many cases a steering group or building committee will oversee the project in an advisory capacity, without being involved on a day-to-day basis. This group monitors progress and communicates developments. A clear commitment to build must be accepted and communicated by the group

during the early stages of the project, together with an understanding of the financial and other consequences of this commitment. The project sponsor and the design champion will be part of this group along with stakeholder representatives and special internal project teams, including user representatives. They may play a role in maintaining 'buy-in' across the project.



18



2.2.5 Independent advice

Depending on the scale of the project and the skills and knowledge of the project sponsor, the client will often appoint one or more advisers to help with technical aspects early in the process. Smaller scale projects may only require one such adviser. Advisers should have experience of similar design projects and will often be construction professionals such as architects, surveyors, project managers or engineers. The choice of adviser should not be made lightly and the selection process may be similar to that for the design team ←. The adviser's skills need to be complementary to those of the client and appropriate for the stage of the project.

Design advice is especially important for client bodies with little previous experience. The adviser must have no vested interest in the project outcome. If the adviser is an architect, they should continue to assess design quality throughout projects where the building design is the responsibility of the construction team, as is the case for the various versions of design and build, including PFI, where design is developed during the selection of the PFI team ←←. For open space projects, the client team should include a landscape architect.

If a non-design professional such as a cost consultant is the main client adviser, additional design input may be needed from an architect for key reviews of preliminary ideas and during competitive selection of the design teams ←←. If there are several advisers, at least one should have design skills. Good 'chemistry' between the adviser and the in-house team is important. In some situations a client adviser, appointed at an early stage, effectively takes on the role of project manager for the first stage of the project. Some independent advisers specialise in particular building or procurement processes. Professional institutes can help suggest people to consider and give guidance as to what qualifications to expect from the different professionals.



Section 2.6. and
Work sheet 6



Section 2.8 and Work
sheets 2 and 3 provide
information on selection
processes and sources of
possible candidates



Work sheet 4

Box 21: The independent adviser's role:

- help the client make decisions in the early stages
- contribute design understanding/knowledge
- review user needs seriously and helps prepare the outline brief
- judge the quality of ideas and suggestions
- suggest and evaluates possible project delivery team members, eg architect



2.2.6 The project manager

A project manager is needed to manage the project proactively, especially for large or complex projects. While the lead consultant may take on this role, in large projects an experienced project manager is often employed. They may be needed early on if the in-house management has limited experience. If appointed later, the project manager must familiarise themselves with the early stages of the project.

There are two types of project manager; either or both may be needed on a project. The first type is employed to look after the client's interests in relation to the technical aspects, to brief and manage other professionals and to be the 'employer's representative' with general powers to act on behalf of the client. This person may come from inside the organisation and be taught the necessary skills, or be recruited specifically for the project. This type of project manager has no authority under the building contract and cannot issue instructions to the contractor.

The second type is a contract project manager who acts as a contract administrator, is named in the contract between the client and the contractor and chosen as part of the external team. This project manager has sole right to issue instructions and certificates and the role therefore requires experience of construction projects. →→

Box 22: The project manager's role:

- define the organisational structure and communications plan for the project including a timetable
- ensure people keep to the timetable
- clarify the work scope, responsibilities and relationships
- ensure appropriate information is available – or cause it to be collected
- transmit information between the client and the rest of the team in both directions
- ensure smooth decision-making
- monitor progress of all aspects of the project
- act as a single point of contact co-ordinating all the threads of the project
- make and update project arrangements, for instance in a project procedure manual
- consult with stakeholders
- collate information for the detailed brief
- control and assign budgets
- manage scope and change control process
- monitor resource availability, performance quality and document/data transfer
- check external team members details (such as indemnity insurance)
- arrange for properly documenting and closing-out the project

Further guidance about the role of project managers and the skills required is available in *Construction Project Management Skills*, CIC, 2002

←←

2.2.7 Other team members



2.2.7.a Facilities manager

The facilities manager is the person who will manage the building when complete. This involves setting up contracts for, and the day-to-day management of, services such as security, cleaning, deliveries and other activities that support the use of the building. Bringing a facilities management expert on board at the briefing and design stage is a simple action that can make a great difference to a building in use. While it is not always possible to hire the person who will actually manage the finished building, the expertise of a hands-on buildings manager can be useful at a very early stage. This element is a key part of PFI projects (also known as Design, Build, Finance and Operate (DBFO)), as the operational aspects of the building over, say, a 25-year period, are an integral part of the contract to design and build the project.



2.2.7.b Board members

Board members may have specialist knowledge or helpful contacts and should be brought into the discussion early, both to obtain their backing and to note any help they may be able to give. In small or voluntary sector organisations, board members may have more experience of construction projects than the lead client – the operational person leading the project. If so, they can help at early stages by describing their experiences of different procurement and contract options, developing sound procedures and suggesting and choosing specialist advisers. If board members do not have suitable experience, consider co-opting someone who does onto the in-house team. They can give advice on financial matters and add credibility to the project in the eyes of potential sponsors. Other people of influence, such as local councillors or MPs, may lend their support.



2.2.7.c Finance, legal, HR, IT and special functional needs

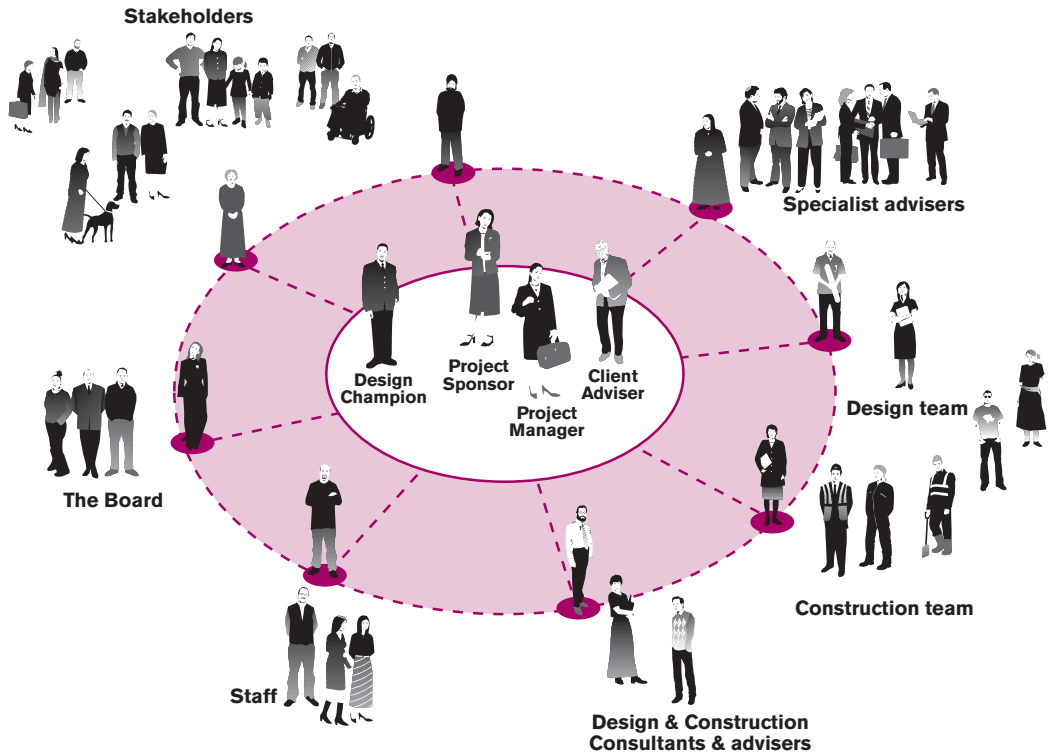
Other client representatives need to be consulted throughout the project. Some will have a role in the project; others will act as watchdogs for the interests of future users and the client during occupation. The variety of specialists needed depends on the nature of the client's business. Although one person may be able to fulfil more than one role, any role will involve a time commitment and the organisation must be willing to make resources available so that team members can have time out from normal duties.

Box 23: Other possible members of the in-house team

- finance experts, for a business case and budget preparation
- a lawyer to review all contractual documents before they are signed, particularly if they are non-standard, and for specialised legal requirements
- human resources representatives for consultation processes, recruitment and staff contracts when the project is complete
- information technology specialists who know about the impact of realistic IT developments
- special user representatives: a user team (eg an access user group) or an individual, eg a wheelchair user, a visually impaired person, a senior clinician or teacher to provide input to briefing, design checking and post-project evaluation
- a 'commissioning officer' who understands the systems and rules for operating current or similar premises and will focus on the operational aspects of the new project to ensure that operational needs have been understood and can be satisfied

Fig 10: There are many people involved: stakeholders, internal and external team members.

Clear communication and links should be established, often through key individuals who may make up the project steering group





2.3 Testing the business case: options and feasibility

The following things are needed and happen in all projects, usually sequentially: option appraisal, feasibility study, outline project budget and business case. Box 12 describing project structures shows how these fit into different procurement routes.

2.3.1 Option appraisal

An outline business case is needed to check whether there is a justification for seeking to start a project. An option appraisal, considering several possible ways of achieving the goals of the organisation, should be carried out to look at the broad possibilities. You can then compare the costs, benefits and risks of each option on a common financial basis and check them against issues of practicality and suitability. An option is selected that seems likely to satisfy both the functional requirements and the outline business case.

→
Section 1.6.2



→→
Boxes 42 & 43



Box 24: Impact of potential approval constraints

At this preliminary stage planning permission and other approvals, such as listed building consent or specialised approvals relating to the function of the organisation, must be considered. They will have an impact on what is feasible. It may be worth having preliminary discussions with the local planning officers to understand what form and scale of development will be acceptable. Any other approvals that are critical to the project should also be investigated as soon as possible. Independent advice can be sought to help with these checks.

2.3.2 Feasibility study

Then a feasibility study is needed to test reality against aspirations and the vision behind the project. It is crucial to carry this out as early as possible in order to confirm whether to carry on with the project. It should be based on the outline brief, which it tests and refines. This should define the areas of detailed work needed to take the project forward. The study may reveal that some major aspects of the project, such as the preferred location or the speed with which it can be carried out, should change. A feasibility study should consider the following aspects:

- **technical** – relating to the building or site possibilities, constraints and likely permissions
- **financial** – including initial fund-raising and long-term cost implications
- **organisational** – considering the ability of the organisation to carry out the project and extra skills needed
- **programme** – the length of time needed

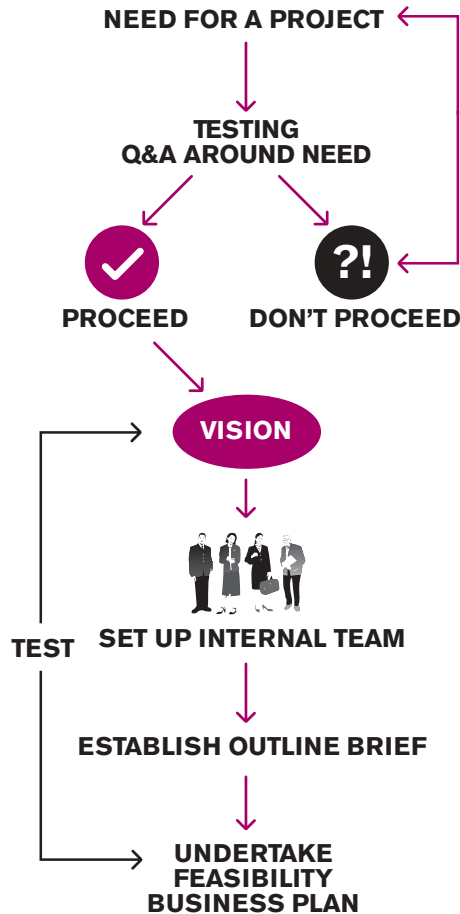
The client organisation will usually need technical support to carry out the feasibility study and can commission outside specialists such as architects, chartered surveyors and planners for this purpose. Architects are often asked to take charge of feasibility studies because of their experience of turning briefs into building designs. As with all contracts, it is important to be clear about how far the appointment extends.

A contract for a feasibility study does not imply a subsequent appointment and it is unwise to accept an offer to produce a feasibility study for no fee, as the architect/designer may then assume you will give them a further commission.

Box 25: Questions a feasibility study should answer:

- Is the need real; is it best met by a building project?
- Will the budget cover the type of building you want?
- What alternative scenarios are being considered?
- Will increasing the budget improve the opportunity or reduce risk?
- Will funding be available and at the right time?
- Is the organisation capable of managing the project as it is developed?
- Is the organisation capable of managing the finished project?
- Are there funds and skills to manage the finished facility?
- Can time constraints be met?
- Is the chosen site/building suitable for the function and the business case?
- Are there any potential site problems, such as poor ground conditions, inadequate utilities or access or lack of expansion space?
- Is planning permission likely to be granted?
- What impact will the project have on the locality?
- Are there any legal problems?

Fig 11: From decision to proceed to a business plan, by way of a vision



2.3.3 Outline project budget

Now is also the time to draw up an outline project budget, which will provide a baseline to use throughout the project. This budget, which is important in determining what it is possible to achieve, should describe all project costs including:

- land acquisition
- capital cost of construction
- fitting out, including IT and specialist equipment
- professional fees
- costs involved in identified risks
- financing
- inflation
- VAT where applicable
- disruption or down time during a move

The outline budget must be considered in the light of costs calculated for the whole life of the building, which will include management, maintenance and perhaps eventual disposal.

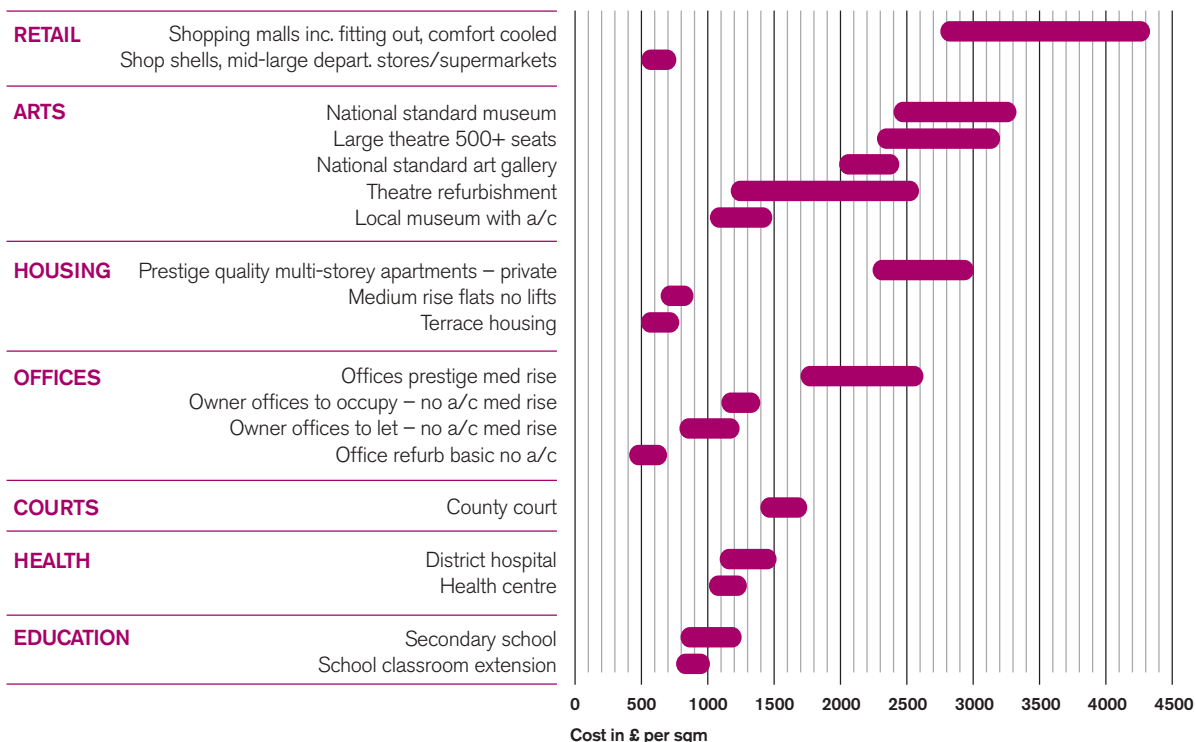
When all costs are taken into account, the money actually spent on the spaces created to fulfil the organisation's functions can be a relatively small part of the total bill. Financial experts or quantity surveyors specialising in building costs carry out the detailed calculations necessary to build up the business plan and the budget. However, as the client you should develop an understanding

of the general way costs breakdown, so that you can understand the consequences of changes in assumptions and requirements. Site conditions and many other variables mean that the costs given in Figure 12 are an approximate guide only. Advice

early on from a cost consultant or quantity surveyor can help check whether suitable cost assumptions are being made, including whether appropriate allowance has been made for costs of design and construction management required to achieve the desired quality.

Fig 12: Typical cost per sqm of different project types and qualities

Building costs per square metre vary according to the building type. A theatre building, with its specialised equipment and spatial requirements, is many times more expensive per square metre than a school or an office.



2.3.4 A realistic business case

The business plan should express the main purpose of the project, the basis for any changes proposed and should demonstrate its business benefits. At this stage the plan should be based on the preferred option and consider the costs and benefits associated with it. The cash flow required and the point at which the benefits will be realised are part of the business case, which should also identify success factors and risks, in the form of a risk analysis. ←

The client needs to develop and monitor the business plan and project budget in tandem throughout the life of the project. It will evolve with the project, taking into account the implications of the completed project as they become clearer. It may also have to take into account changes in the project context, such as competitors locating nearby, a change of business direction and so on. All parties, client, designer and contractors, need to recognise its importance and contracts and procurement approaches should take it into account.

→

Achieving Excellence N°4
Risk and value management



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Box 26: What to include in the business plan

- capital costs
- revenue costs
- sources of funds
- the 'business' benefits expected from the project
- comparison with benefits from using funds in a different way
- the viability of proposals in the prevailing economic climate

When the business plan has been prepared, a sensitivity analysis should be carried out. This aims to discover which assumptions most expose the project to financial problems. The impact of changes to key assumptions for targets and funding patterns should be assessed and if some assumptions seem over-optimistic, the capital budget should be modified.

Cost advisers will be able to advise on any special situations that may apply; for example, charities may not need to pay VAT, even for refurbishment. They will also be able to contribute to the understanding of the costs associated with any risks identified in the risk assessment exercises. Provision may be needed for technical risks, such as unexpected soil conditions, exceptional bad weather or business risks such as major changes in the client's circumstances requiring a change in strategy. The processes described in HM Treasury *Green Book Appraisal and Evaluation in Central Government*, 2003 are applicable to all public projects. →→

2.4 Develop the outline brief

2.4.1 The role and contents of an outline brief

An outline brief is normally formulated once the vision has been adopted. Sometimes it provides the catalyst for a crisp, memorable vision statement, although frequently the two develop in tandem. Irrespective of which comes first, they should be aligned.

A good brief acts as a map to help the project delivery team reach their destination. Sharing information about the project goals helps build the trusting relationships that are essential for success. The brief is one of the areas for which the client can never give away responsibility. It helps good communication between all parties and forms the foundation of the design. Involving an architect at this stage generally helps a client consider possibilities that might not be obvious. A good brief is an evolving document, reaching greater levels of completeness and detail as needed.

The brief has a role to play at all stages of the project. It needs to use clear wording, actual rather than approximate numbers and to state specific aims unambiguously. The outline brief cannot provide all the answers and at the early stages it may be quite short, but it should pose questions and challenges for the designers. Goals or aims identified in the outline brief should be divided into those that the client 'must have' and ones that are 'desirable but not essential'. This distinction will help guide the project team and reach decisions where compromises are needed.

OGC's Achieving Excellence N° 7, *Whole Life Costs and Financial Management*, sets out how to establish a method to check that best value on whole life costs is being provided and how to set a baseline for monitoring and managing the costs. Extensive references are provided.

←→

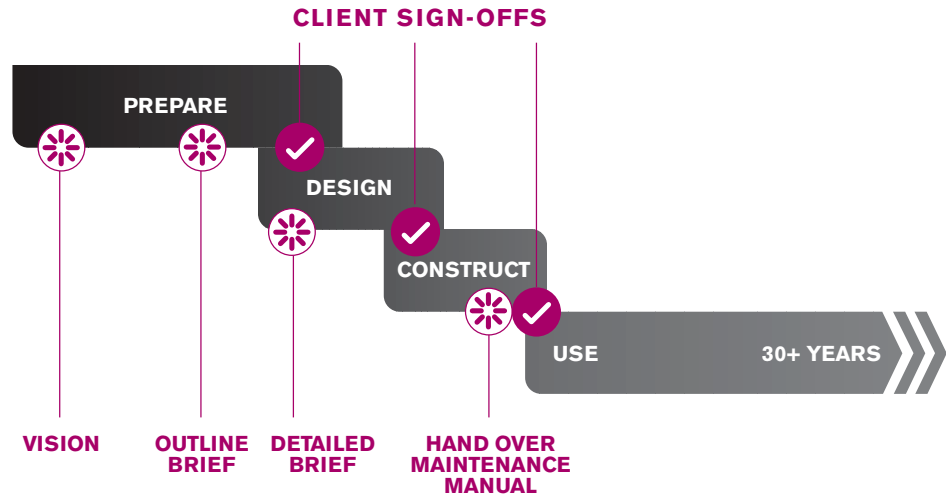
Box 27: Relating the outline brief to the vision

Making sure that the brief is firmly tied to the vision involves asking questions about the project:

- How will it contribute to the local environment?
- What image will it project to users, neighbours and other stakeholders? Will it reflect the vision?
- Is long-term flexibility needed? On what timescale?
- How 'green' should the project be?
- What special accessibility will be needed?
- What are the target user groups, their habits and expectations?
- What special requirements does the intended use have?
- Are your expectations/hopes realistic? Can you exceed them and those of the funders?

Fig 13: The brief evolves through the stages of the project

The vision for the project evolves into a brief. The client must sign off the brief and other critical stages.



Box 28: Contents of the outline brief

- the organisation's overall vision and the project's role in meeting it
 - key aims and objectives for the project to act as measures for its success or failure
 - the organisation's structure and decision-making processes
 - the project's contexts: physical, historical, economic, ecological, social and political, with discussion of any potential conflicts
 - the urban design and town planning context: listed building issues, the building's role in its setting and its contribution to urban spaces or landscape
 - the project parameters covering quality, time and cost (including assumptions about how long the building should last) and setting priorities
 - an outline of the spaces needed, both internal and external, which may be expressed in terms of their expected functions – why spaces are needed and how will they be used
 - the number of people, staff, customers, etc, for whom the building is intended
 - user requirements, including accessibility
 - performance requirements such as measurable sustainability targets (eg from BREEAM) as part of key sign-off items
 - a requirement for a life cycle analysis relating to short and long-term business plans
 - the project budget
 - a timetable giving target deadlines for key sign-off and completion dates
 - technical information such as surveys of existing buildings
 - any partners likely to be involved
- Initially there may be little or no information for some aspects. Details should be added as they become available. When the outline briefing document is to be used to inform consultants bidding for work it should also include what is expected, by when, from whom and describe the selection process and criteria.

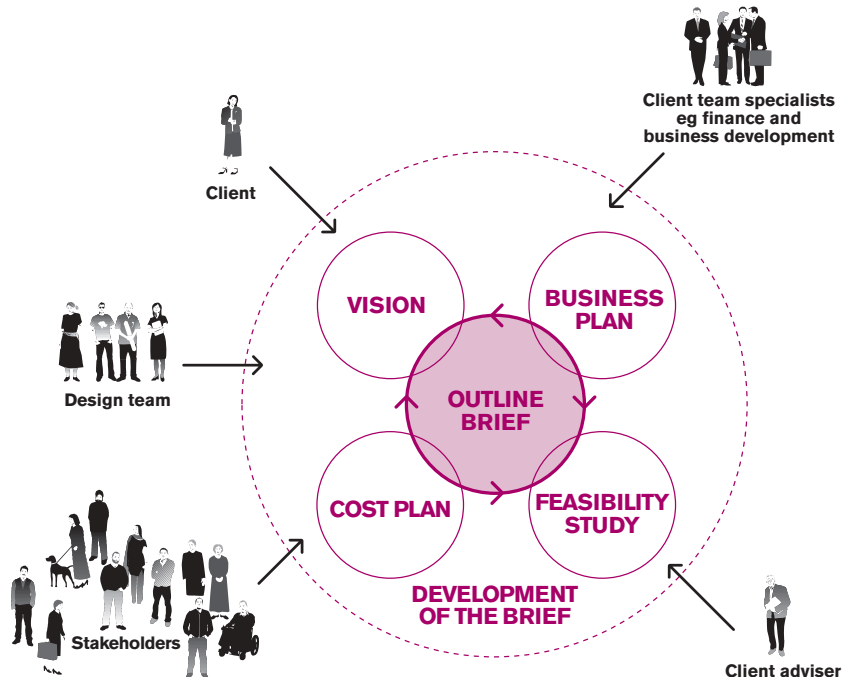
2.4.2 Drafting an outline brief

Writing a brief usually takes several rounds of consultation and review, each leading to a more detailed understanding of the project's aims and users' needs. This process is often described as 'iterative'.

Brief writers can look at precedents and talk to clients with similar projects. If a design team has not yet been appointed, the brief may be written by someone in the client organisation or by an expert employed for the purpose. For large projects, a project manager's expertise may be needed.

A useful and revealing way of starting to develop an outline brief from the simplest statement of requirements is to describe a typical day or week in the life of the proposed building, considering it from the point of view of different types of users. This allows many different people to have input. Different members of the client team can be made responsible for specific parts of the brief, ensuring details are not forgotten. Consultation with users and the public enables their experience to be included.

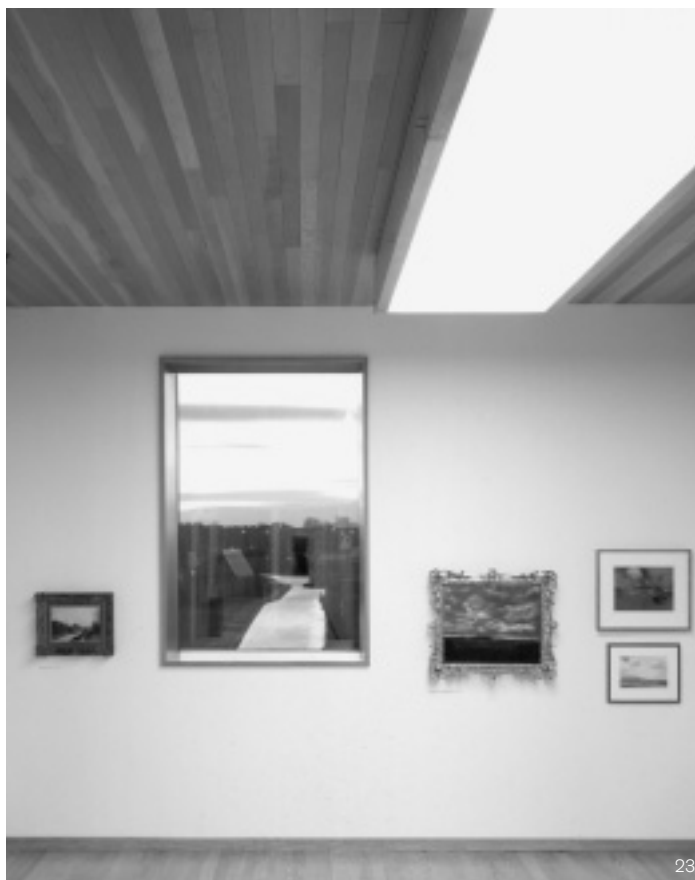
Fig 14: Inputs to the brief



A team of user representatives can be created to consider the particular needs of their user groups, the way the design is meeting them and to act as an information channel to and from their own working groups. Members of this team can continue to represent their groups throughout the project. When the move is planned they can tell their groups about move procedures and provide details of floor layouts to designers and move planners to help co-ordinate this detailed process. Collecting information for the brief can be time-consuming and should not be rushed; it must be managed so that contributions are sought at the appropriate time and the process does not raise false expectations.

While the brief must be flexible enough to respond to changes in circumstances, there must also be set points at which decisions are 'signed off' and cannot be changed.

In design and build projects the brief is called the 'employers' requirements'. These can start as an outline and be developed into a comprehensive document setting out in detail what the client wants. The brief will be in the form of an 'output specification' for Design, Build, Finance and Operate (DBF&O) projects associated with PFI, and may be in this form for any project. Rather than defining 'inputs', eg classrooms of a particular size, they describe the job that the completed facility is required to perform, including maintenance and repair regimes as well as the throughput of people and goods. →→



Work sheet 4



2.4.3 Sustainability objectives

Sustainability objectives should be included in the outline brief, as they must pervade the whole design. Sustainable design is holistic and takes into account respect for the environment, health and safety of building users and economically justifiable whole life costs. It is about a whole range of human aspects:

- How will the project be used/lived in?
- How will it cope with change?
- Will it be affordable to run?
- Does it put pressure on the surroundings and the infrastructure?

Suitable targets, for example in energy efficiency, are needed for the project delivery team to work towards. Your input into this information and your support for the concept of sustainability will be needed to make sure that long-term thinking is never abandoned for the seemingly simpler route of satisfying short-term objectives.

Guidance and advice on sustainable issues can be found in:

- Regional planning guidance
- UDPs and local plans
- Local Agenda 21
- Building regulations
- Planning policy guidelines
- BREEAM

Fig 15: A building can serve many generations



Box 29: Incorporating sustainability →

- think about the long-term eventual uses of the building even if your project has a shorter horizon
- 'long life loose fit' indicates that a building may meet evolving needs more easily if the design is not over specific
- incorporate accessibility and inclusive design from the start
- the environmental 'reduce reuse recycle' circle must be resolved against the construction project's 'time cost quality' triangle
- clarify your objectives in respect of timeframes – this can be achieved by using the Design Quality Indicator
- define the parameters for sustainability and set firm, auditable targets using benchmarking and assessment systems
- define the points at which the designs will be checked against the targets
- ensure that decisions and compromises are made against an agreed structure
- define a process and specify the advisers you need to make informed decisions and evaluate them
- police these sustainability indicators with the same rigour as the cost issues
- remember – most buildings have long lives



←

Useful sustainability references are available from the Construction Industry Council cic.org.uk

– *Constructing for Sustainability: a basic Guide for Clients and their Professional Advisers*, CIC (in association with ABS, CIRIA, RTPI, CIOB and DTI). June 2003

– *Brownfields - building on previously developed land: a briefing guide for construction clients*, CIC/CIRIA/DTI. June 2003

– *Water Conservation in Business: a briefing guide for construction clients and building owners*. CIC/CBPP/DETR. 1999

Further information is available from the following:

– The Movement for Innovation *Sustainability Working Group Report: Environmental Performance Indicators for Sustainable Construction* at www.m4i.org.uk/m4i

– The Sustainable Development Commission www.sd-commission.gov.uk
www.sustainable-development.gov.uk

– www.dti.gov.uk/construction/sustain/bql/index

– www.iclei.org/europe/suscam.htm

→ Information on the regulations, codes of practice, access auditing and other useful material can be obtained from the Disability Rights Commission www.drc-gb.org/drc/default, the Centre for Accessible Environments - www.cae.org.uk and from organisations concerned with particular disabilities.

2.4.4 Inclusive design

Inclusive design is integral to a well-designed project. Guidance exists to describe best practice and help organisations comply with legislation, the most recent code of practice being BS8300. The Disability Discrimination Act 1995 (DDA) requirements also apply to the management of buildings and spaces – not all barriers are physical ←. The needs to be catered for are much wider than those of wheelchair users. They include the wide range of mobility problems, including visual and auditory impairments, pregnancy and the range of learning disabilities.

Box 30: Examples of sustainable design principles

Creating a building or space which is:

- flexible and adaptable
- able to accommodate multiple uses
- protects health and safety, including good air quality, natural lighting
- protects biodiversity

Ensuring minimum impact during and after construction:

- non-toxic construction materials with minimum embodied energy
- water conservation – reduced use and rainwater capture
- energy conservation – using efficient heating, lighting and control systems, renewable resources, integrated with local transport
- minimising waste and pollution – reuse, recycle and renovate



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2.5 Choose a site or a building

In addition to its location, a site's potential lies in the local context, the site or building shape, slope, orientation and many other features that will contribute to the final design. It is important to understand what a site has to offer. There may be several possible locations or buildings to choose between, which should be evaluated by people with experience and understanding of these factors. A cost benefit analysis assessing the merits of conversion of an existing building against new site acquisition should be undertaken.

Sometimes a client already has a site or building in mind. This should not, in itself, cause a project to take place. Proposed solutions must be driven by the client's need rather than by the characteristics of an available site or building. Possible planning permission or constraints related to approvals such as listed building consent need to be investigated early. As soon as information is available about a site or building and the extent of the project, discussions should be held with the local planning officers to test principles of development, land use and massing. If the building or site is unsuitable and prevents a good design solution to the brief, then a different location is needed. It is unwise to commit to a site or building before proper evaluation has been made.



2.5.1 A site in a larger development

Special pressures arise when a project site is part of a larger development, perhaps created by planning gain (Section 106 agreements) →. While a publicly-funded project may be desired to support a wider development, this can constrain the client by limiting the space available, time-scales, procurement methods and choice of project delivery team. The client and their advisers need to negotiate with the developer of the larger project to ensure that their own needs are properly met and that quality standards are upheld, especially if the building is being designed and built by a private sector developer. In a large development not all the plan is likely to be completed quickly. Discussions with the developer, local authorities and local property agents will help gauge likely time-scales.

Also, the new facility may be in the middle of a construction site for many years, affecting access, transport and security. Before signing an agreement with the developer, the conditions expected for the rest of the site should be agreed and set down to help plan any adjustments that may be necessary.

←
Glossary

Box 31: How to pick a site

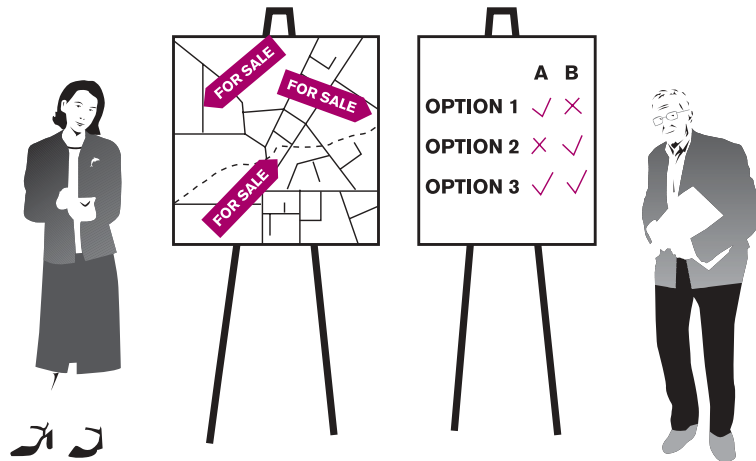
How to look for a site or building:

- with help from an independent adviser
- with help from property consultants or estate agents, depending on the scale of the project and the geographical area of search
- by informal contact with local or partner organisations delivering similar services
- through the local authority and other public landowners
- by pacing the streets in the desired area

Questions to ask yourself and your advisers about a site:

- Will staff and users be happy to go there?
- How will they get there – what are the local transport and pedestrian routes?
- Will the location alter the business case?
- Is the size right?
- Will it limit design options – through size, shape or types of neighbours?
- What are the opportunities and constraints in terms of planning permission?
- Will access and security be efficient?
- Can it handle flows of people, materials and traffic during construction and after occupation?
- How will the project affect the locality?
- Will the project relate positively to its surroundings and benefit other uses?

Fig 16: Use option appraisals when choosing a site



2.6 Select a procurement route

2.6.1 Procurement routes

Procurement is the purchasing of products, work and services. It is more important than its unglamorous name suggests and plays a major part in any project. The procurement route determines many aspects of the client's relationship with the design and construction teams.

Procurement processes are usually subject to a variety of controls, including internal standing orders, external audit, review by funding partners and, for publicly funded projects, statutory regulations such as the European Union procurement directives. Government recommends that central government clients use integrated processes ↔ such as design and build, prime contracting and various forms of public private partnership (PPP), including PFI, to benefit from the input of all the essential skills at the earliest relevant moment. However other routes, such as traditional ones, may be used if they can be shown to offer better value for money. If such routes are used, attempts should be made to maximise integration and allow contractor/specialist input to design – such as early contractor involvement through a two-stage traditional approach.

2.6.2 Advice

How procurement is decided and managed can make or break a project and it is vital to take proper advice. It cannot be treated as an afterthought as it affects every aspect of the project. Advice should be taken from someone with experience of having delivered projects, able to take a balanced view of the client's needs in relation to quality, time, cost and risk.

Fig 17: Get help to choose a procurement route



←←
Glossary

Project balance – quality, time, cost, risk

- Is the project quality to be 'ambitious and inspirational' or good but not outstanding?
- How much cost certainty is needed and at what stage?
- How important are time constraints, what is the urgency?
- What is the relative importance of quality, time and cost? Is one more important than the others?
- Will any of these aspects jeopardise the project if requirements are not met?
- How technically complex is the construction?
- What are the unknowns, where are the big risks?
- How much flexibility to make changes at various stages is required?
- Who is best able to control the risk?

Selection and competition ←

- Should there be a design competition?
- Should any design competition be open and widely advertised, or invited from known or recommended people?
- Does the project fall within OJEU thresholds for selection of consultants, contractors or both?
- Is funding tied to the procurement method?
- Do any public/private finance issues apply?

Project management

- Who should manage the project?
- How involved does the client want or need to be?
- Should any aspect be managed directly by the client?
- What skills and strengths are available?
- If the project is managed outside the client organisation, should it be by the contractor, an independent project manager, a design professional, a financial expert, another specialist, or a combination of these?

Risk management

- What is the degree of uncertainty to be expected in funding, in the client's brief, inherent in the site, because of innovation, etc? Will some decisions need to be deferred as long as possible?
- Are potential changes foreseeable?
- Who is best able to control the risks – client, contractor, others?
- Is the client able or willing to carry risks?
- How should carrying risks be compensated?

→
Work sheets 2-5

2.6.3 A procurement plan

Procurement must be planned as part of the project. This will help ensure that the schedule allows the project to meet regulations and obligations. Basic decisions should be summarised as a procurement plan, which defines the main areas of client responsibility. The client adviser can help put this plan together. The procurement plan may be part of the plan for carrying out the whole project, sometimes called a Project Execution Plan (PEP).

There is a great deal of jargon in this topic but in essence the decisions that need to be made are fairly clear. →→

A procurement plan must cover:

- who the client is, who will represent them as project sponsor
- how and when procurement routes for services, works and supplies will be chosen
- how and by whom procurement processes will be managed
- how and when the project delivery team – architects contractors and others – will be appointed
- a provisional timetable or programme, including key stages and dates in the process
- how and when reviews and monitoring will be carried out
- how and by whom the new building/facility will be managed

Projects with 50% or more public funding and above a set cost threshold must follow precisely the European Union (EU) procedures and timetable which can lead to a lengthy process. →

2.6.4 Four approaches

All clients, even those who are not from large public sector organisations, need to understand procurement options →. Different routes share responsibilities, risks and rewards in different ways. They vary in:

- how participants (designers, builders and sometimes funders and facility managers) are chosen
- their relationship to the client or end-user
- the participants' and client responsibilities
- the type and extent of risks the participants and clients choose to take or accept
- how much overlap there is between design and construction
- who signs the contracts →
- who manages the final building
- the ownership of the project

There are four broad ways in which arrangements are made between clients, designers and building contractors, although these are constantly evolving. The four categories each have several variants but in simple terms they are:

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Work sheet 3

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Work sheet 1 contains tabular information about the ways different procurement routes may be suitable for different projects. These tables should be used when the best way forward is being discussed with advisers. Work sheet 4 describes the PPP/PFI procurement route.

←←

OGC documents, in the Gateway Review Process and the Achieving Excellence in Construction guidance suite (Successful Delivery Toolkit, www.ogc.gov.uk), contain detailed advice, give references and describe government's preferred procurement routes. Clamp, H and Cox, S (2003) *Which contract?*: choosing the appropriate building contract, RIBA Enterprises, London, gives an introduction to different procurement routes.

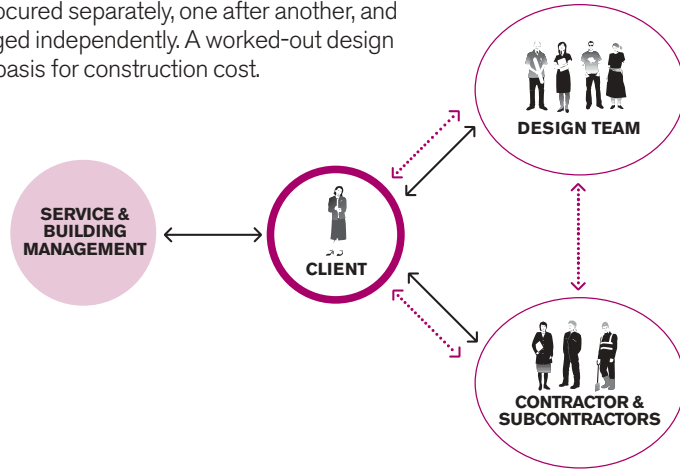
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Section 2.7

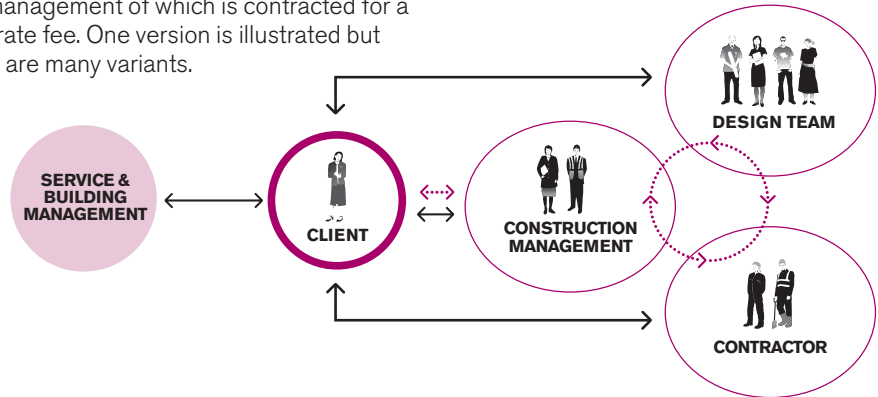
Fig 18: Four types of procurement ←
The relationship between the players – client, designer and construction teams vary for the different approaches

↔ **Main legal relationship**
⋯↔ **Communication**

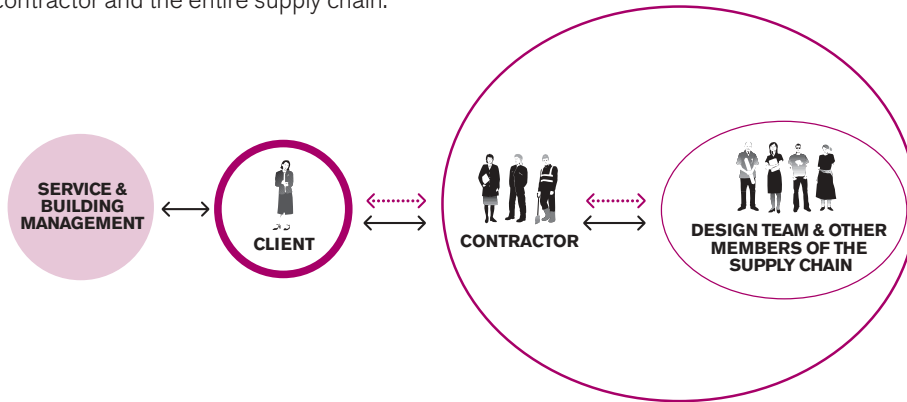
Traditional relationships – designer-led projects in which design and construction teams are procured separately, one after another, and managed independently. A worked-out design is the basis for construction cost.



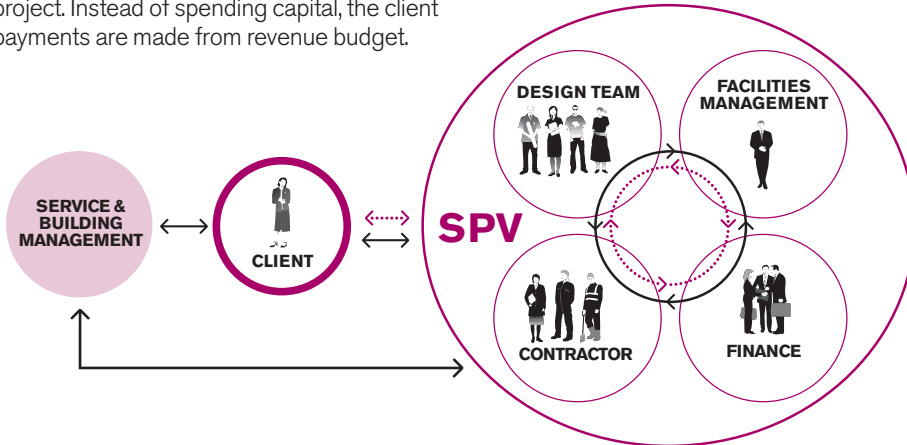
Managed forms of construction – design procured separately from construction, the management of which is contracted for a separate fee. One version is illustrated but there are many variants.



Design and Build, including Prime Contracting – the builder is responsible for design and construction. In Prime Contracting a relationship is developed between the contractor and the entire supply chain.



Design, Build, Finance and Operate DBFO (PFI is an example of this) – a Special Purpose Vehicle (SPV) is created to undertake all aspects of the project including operating it for a period (say 25 years), after which it may revert to the client depending on the contract for the specific project. Instead of spending capital, the client payments are made from revenue budget.



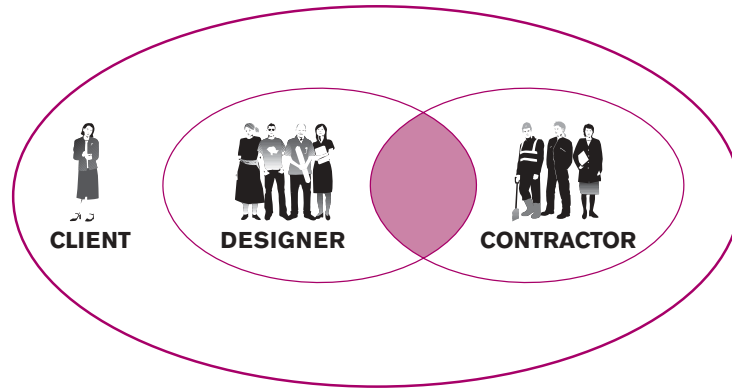


Fig 19: **An integrated process**

This requires all parties to work together for successful project outcomes, including quality

2.6.5 An integrated team

The terminology surrounding procurement routes has multiplied and evolved over the last few years. Government initiatives, described in reports such as *Constructing the Team* (The Latham Report), *Rethinking Construction* (The Egan Report) and *Accelerating Change* have strongly emphasised the need to get away from the 'blame culture' and adversarial approach previously prevalent in the construction industry. ←

Government and the construction industry are supporting routes that emphasise early collaboration between the design and construction teams to achieve a design that can be built easily and economically, where the structure, services and spaces are in harmony, the details carefully considered and specialist contractors give early input. This approach is valuable when, for example, new architectural ideas are being

explored, or a less experienced but innovative designer can be teamed up from the start with an experienced contractor. All clients spending public money are encouraged to work with their design and construction teams in a positive and fair-minded spirit, seeking mutual benefit from projects ←←. This approach is described as 'integrated'.

An integrated approach can apply in any procurement route. Where team members initially work separately, for example in some versions of traditional procurement, this may result in a designer and contractor working in sequence rather than in parallel. If this is the case, greater efforts are needed to achieve integration. This is easier, for example, in a two-stage procurement route that can bring design and construction skills together early, which will help to achieve a degree of integration.

→→

Work sheet 4

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Section 6.1

2.6.6 Public Private Partnership (PPP)

The procurement methods that place importance on working in partnership with private finance and in integrated teams have been practised for a decade or more, and some good practice is emerging about how to get good design in, for example, a PFI project →→. Variations of specific ways PPP is used are being developed, for example in the primary care and health sectors. Prime contractor relationships are being used on Design Build Finance and Operate (DBFO) rolling programmes so that many smaller projects may be undertaken by a team led by the prime contractor, but not all are defined or let on day one. However the lessons for tendering, and how these can be used to help a client achieve good design, are similar in all types. →→

PFI projects often give private financial partners responsibility to design, build and manage and/or operate the facility for many years – usually 25 – beyond initial construction, after which management and operation may be taken over by the client depending on the contract with the SPV. These are complex arrangements, designed to introduce finance and management approaches from the private sector into public projects, and require extremely careful definition of the required result (output specification), including the importance of all aspects of design quality. This needs to be built into the legal contracts between client and supplier.

This method enjoys strong government support. The advantage of the PFI route, especially for major (over £20M) and complex capital projects with significant ongoing maintenance or management requirements, is that the team that will be responsible for long-term management and maintenance of the facility is often included from the outset, which transfers this risk to the supplier. This provides a powerful incentive for the design/construct team to provide a well designed building that is easy and efficient to maintain and manage, built using materials and techniques that will stand the test of time, and that offers good value for money throughout its life in use.

However you will only get what you ask for, so clients must take great care to express their output requirements carefully and, to be achieved, high quality design must be explicitly requested.

←←

see HM Treasury
PFI: meeting the investment challenge, July 2003

←←

Work sheet 4



2.6.7 Choosing a procurement route

The procurement route should be chosen so that risk always resides with whoever is best able to bear it. It should aim to:

- make appropriate trade-offs between quality, time and cost, without compromising quality
- get best value through the right type and level of competition
- share risk in a suitable way between contractors, designers and the client
- provide suitable rewards for acceptance of risk
- provide for innovation where needed

Expert advice is needed from someone familiar with the features, benefits and problems of the different procurement routes, to help choose the right one for the project. A workshop, to consider all the options available and the pros and cons of each, is a good way to proceed. High quality cannot be taken for granted in any procurement route and the client must emphasise the need for it all the way through the process. Before starting on a building project clients, particularly first-timers, may have in mind a 'traditional' approach, which may or may not be suitable or in line with best practice.

For projects with major government funding, three integrated approaches are currently preferred – Design and Build, Prime Contracting and a Private Finance

Initiative (PFI). Reasons why projects have failed in the past have been considered by both the government, through the OGC, and by the construction industry. *Rethinking Construction, Accelerating Change* and the *Achieving Excellence* initiative, all emphasise the need for processes where the design and construction teams work together as an integrated team to deliver best value for the client.

Points to consider and discuss with advisers:

- small projects can and should use simpler methods than larger ones
- when time and cost certainty are required at the outset – design and build may be used to achieve this – ways must be sought to protect design quality as the design evolves
- is the project sufficiently advanced and the client sufficiently experienced for an effective and complete output specification to be created – as would be needed for PFI projects?
- in projects with many unknowns at the outset, the risk is likely to be distributed differently from those with more certainty
- projects that are part of larger schemes may have to follow the procurement route chosen for the overall project

2.7 Select contracts

The relationships between the client and members of the external teams are defined in legal contracts. It is of paramount importance that such contracts are simple, clear and unambiguous. To support an integrated process, contracts should enable team-working, motivate all parties to work together with a common aim and have the flexibility to deal with the inevitable changes that arise from uncertainties inherent in building projects.

Contracts define a financial relationship and they should set a framework for fair dealing between parties. The contracts should deal with all key issues – time, cost and quality – and determine the distribution of risk. Who carries what risk and to what level is always a tricky area for a client to understand. Seeking to pass on all of the risks is unlikely to achieve value for money. The starting point for any discussion is to examine who can best handle each individual risk and to what level. Capping risks can often avoid contractors over-estimating the potential cost at tender stage.

Box 33 indicates the range of issues contracts should cover but specialist advice is essential. The selection of forms of contract should be made with the help of an experienced person. Depending on the scale of the project, and whether non-standard requirements are anticipated, this advice could be given by an experienced consultant or a specialist

lawyer. Wherever possible, contracts should be standard, not tailored to particular projects, and the only changes should be striking out clauses that are designed for specific either/or situations. Where specially adapted or bespoke contracts are unavoidable, legal advice from a specialist lawyer should always be obtained. In all cases clients should ensure they are familiar with and understand the terms they are signing. Scrutinise the 'small print'!

Different procurement routes involve appointing designers, contractors and subcontractors at different points in the project process. Contracts should be specific to a particular procurement route, although they may need to have specific clauses chosen to make them fit the procurement situation. There is a benefit in using a suite of contracts dovetailed with others so that each set interlocks, leaving no gaps. The set of contracts should fully define everyone's responsibilities and their relationships to each other in a 'back-to-back' way and every task should be the responsibility of one of the parties involved. ←←

Check whether selected contractors and design team members are familiar with your preferred form and have used it successfully. The New Engineering Contract (NEC), among others, has developed a version suited to partnering. The OGC's GC/Works (Government Contract Works) suite is designed for collaborative work. The Joint Contracts Tribunal (JCT Ltd) publishes a wide range of forms



National Building Specification (NBS)
Contract Documentation - an introduction available on www.nbseducator.co.uk, has explanations of the many different pieces of contract documentation that may be needed at different stages

designed for different procurement routes, including a Partnering Charter. Some of these are suitable for Local Authority and PFI projects. There are many other forms, which can be considered with the help of experienced advice →→. Project Partnering Contract 2000 (PPC 2000) from the Association of Chartered Architects has been written for these arrangements. Some of the people involved, such as artists, may not be specifically mentioned in standard suites, but they too must have clear and equitable contracts.

For a PFI project, the client's contract will be with the Special Purpose Vehicle (SPV), the provider of the entire process of DBFO. The OGC has standardised contracts for PFI procurement by government departments. The SPV makes its own contract arrangements with the construction team. The design work will have been carried to an advanced stage by two or three preferred bidders and the financial bid is based on the designs prepared by the bidding teams. Therefore, when a preferred bidder is appointed, the contracts between the SPV and the design and construction team members are already in place.



Clamp, H and Cox, S,
*Which contract?:
 choosing the appropriate
 building contract*, RIBA
 Enterprises, 2003
 Information about contracts
 specifically intended for
 partnering can be obtained
 from *A Guide to Project
 Team Partnering*, 2nd
 Edition, CIC, 2002, which
 sets out things that
 clients should consider
 when embarking on a
 partnering route.
 See Glossary



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Box 33: Contracts should:

- identify the documentation on which the contract is based, including all targets, such as energy consumption/CO₂ emissions
- identify all roles and the interface between them
- require all parties to co-ordinate effectively with the rest of the team
- balance risk, responsibility and reward
- identify the project lead manager or lead designer
- be compatible with other contracts, preferably part of a suite
- leave no loopholes for misunderstanding
- define time limits for any process or stage and procedures to follow if there are overruns
- set out clear lists of duties and deliverables
- define payment conditions, times and amounts at suitable milestones
- define when payments become 'overdue' and any interest charges
- define when any sum is to be withheld and when it will be released
- describe the defect period process
- require parties to seek to consider properly the implication of changes
- agree how to handle changes
- provide for the speedy and effective resolution of disputes
- provide a procedure in the event of the insolvency of one of the parties
- define the post-construction information to be supplied by the contractor (such as a full set of 'as built' plans, manuals for the buildings services and instructions for all systems and maintenance including landscaping needs)

2.8 Choose the project delivery team

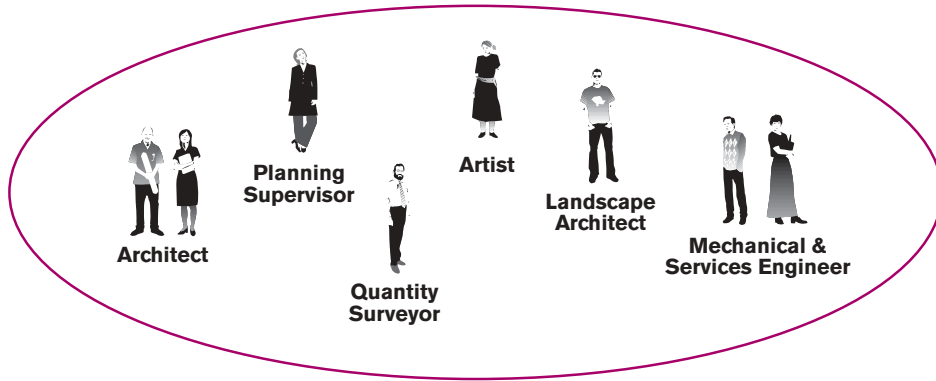


Fig 20: **Members of the design team**

2.8.1 The design team

The design team may be selected together with the construction team, as in PFI projects, or the client may select the design team initially and then incorporate it into the wider team when construction specialists are appointed. For PFI projects the project delivery team, known as the Special Purpose Vehicle (SPV), will usually operate the finished building for many years. It is vital to be sure that the Official Journal of the European Union (OJEU) advertisement stresses clearly that high quality design is an important criterion of choice. Good design advice in the client team is particularly important for this process as the design is developed during the selection period, on the basis of a very detailed brief supplied by the client, and the team finally selected has therefore already designed the building.

Box 34: Designer selection using OJEU or PFI

Worksheets 3 and 4 deal specifically with the processes to be followed in schemes that need to advertise in OJEU and in PFI projects. There is guidance on the OGC website (www.ogc.gov.uk) and CABE has prepared guidance based on schools projects *Client Guide: Achieving well designed schools through PFI*.

If the chosen procurement route does not allow the client to choose the building designer, retaining an independent designer in the in-house team will help check that the detailed design stays firmly linked to the original concepts.



2.8.2 Architects and designers

Choosing the right architect or designer is a critical decision. Proper time and attention must be given to the selection process and to making a choice that will lead to a good working partnership with a skilled design team able to understand client objectives. Generally, the approach should focus on using a structured selection process to choose a designer or team rather than a building design, as arriving at an appropriate design needs time and mutual acquaintance. Clients should look at a wide range of design expertise before making a choice. Visiting buildings designed by the people being considered is important.

It is rarely a good idea to employ a firm merely because a friend manages them, they are local, or you have used them before. A competitive selection process allows you to review a range of available services and select the one best suited to the project and organisation.

However, clients also need to guard against asking for large amounts of unpaid work from prospective designers as part of the selection process. Should the choice lead to a young, possibly less experienced practice, teaming them with a contractor with a good track record in an integrated team may provide the right way forward. ←

Work sheets 2 - 4 give more information about competitive selection and architectural competitions.

→

Section 6.11

→→



2.8.3 Landscape design

The design of open space is every bit as challenging as building design, requiring skill and specialist knowledge. Where open spaces are part of a building project, landscape design skills must be included in the design team from the start. The design of all buildings relate to their surroundings, including adjacent buildings, streets and open spaces. Main access points are likely to be in public open areas.

Buildings should contribute to the shape and function of outdoor space and enhance the quality of the public domain. The client has a responsibility to the wider public to provide good design in these locations and the project will benefit overall if these are considered from the start. When open space is included as part of a building project, the budget, enthusiasm and timing for the design of the open space must run in parallel with the design of the building – clients must ensure that landscape design does not get left to the end of the design process resulting in too little money and attention from a team who may be preoccupied with numerous other issues.

Landscape architecture has three core specialisms, any or all of which may be needed:

- design – creating spaces, what they should look like, how they function and how they will develop over time
- management – concerned with long-term care and stewardship
- science – involving expertise in areas such as botany, ecology and soil technology.

Guides to appointing a landscape consultant can be found in the reference section of this document. ←←



2.8.4 A planning supervisor

A planning supervisor needs to be involved when the project gets underway. It is the client's legal responsibility to appoint one. The client adviser or lead contractor should inform the client of this obligation and help see that the appointment is made. The RIBA maintains a register of planning supervisors. The Construction and Design Management (CDM) Regulations are intended to see that health and safety for the construction and use of the building are considered throughout design and construction. The planning supervisor, (who may be from a variety of disciplines including architect, engineer, building surveyor or project manager) is appointed by the client to see that these regulations are implemented. The planning supervisor checks that the design will not involve hazards in construction or use and compiles the health and safety file. This is handed to the contractor when site operations start, to see that all the health and safety requirements are complied with. When construction is complete this file becomes part of the material handed over to the client and can become a working logbook for the building.



2.8.5 Other design team members

The architect or main contractor, once chosen, may help choose or bring together other design team members, such as engineers, landscape and interior designers and cost consultants. It is important that everyone forms an effective team and previous experience of working together may be helpful. If a traditional procurement route is used, the designer may bring construction knowledge in addition to design skills and may become leader of the project team as well as the link between the client and the contractor. In some non-traditional procurement routes, the choice of designers is made by the contracting team, although a client can sometimes 'novate' a designer and a design, requiring these to be used by the contractor. In the interests of a partnering approach the contractor may select a group of design professionals who have already formed a good working relationship.



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2.8.6 Artists

Many other specialists may be needed as part of the design or construction teams. Artists are one example. Public art, such as street furniture, sculpture, lighting or an artist-designed public square, can connect a project physically with its environment in unique ways. Artists can best become involved at the start of the process, so that they can contribute conceptually to a project – if you use them to bolt-on art work at the end, opportunities are missed and results may be unsatisfactory. If your project has a percent for art policy, you could appoint a lead artist to formulate a creative direction, and advise on how to involve other artists and arts organisations. Using an artist can add considerably to the distinctiveness of your scheme – it may be a factor that makes one bid stand out from the rest in a tendering process.

Box 35: Artists in the project team

- artists can:
 - create new and original possibilities for a project team
 - relate to the social and economic context
 - generate innovative ideas through public participation
 - think creatively about a whole scheme, not just parts, eg street furniture
 - contribute to the conceptual process of creating new urban spaces and places
 - engage the public or special groups in the process of change
 - increase people's understanding and feeling of ownership
- the Arts Council and Regional Arts bodies can advise, and hold slide libraries of artists work
- the RSA runs an annual award for Art in Architecture
- there is a national network of public art agencies that can give specialist advice, commission artists or help with selection – contact them very early on





2.8.7 Contractors

How contractors are chosen varies from project to project. In design and build processes, including PFI, the choice is combined with choosing a design team. However, where the contractor is selected separately the same processes and principles apply as for selecting designers. Tenders must be based on a detailed set of requirements that allow all tenderers to know exactly what they must deliver. This will reduce the likelihood of failing to meet the project needs as a result of cost constraints. But best value, not cheapness, should be the priority at all stages of selection. The experience of the construction team with the building type is important. Visits should be made to see examples of their work. References from past clients should be sought.

Box 36: Contractor or constructor

Contractor is the traditional industry term for a builder. The contractor's role and title will depend on the procurement route used. There are main contractors, management contractors, general contractors, subcontractors and specialist subcontractors. Constructor is an alternative term for builder.



2.8.8 Specialist advisers

The client may use different advisers at various times and the project delivery team will develop, grow and shrink again over the life of the project. A large building project can have a very large cast of players. How the team is chosen depends on the scale of the project, the procurement route, the source of funding and whether OJEU procedures must be followed.

It is essential to select all team members on the basis of appropriate quality rather than choosing the lowest tender. The selection processes described in the worksheets at the end of the document must be framed so that quality is required of tenderers and a method to evaluate this is part of the process. A client adviser may be needed to help in the selection.

In addition to building and landscape design and construction expertise, other skills, and expertise may be required to cover the following issues:

- site selection and assessment
- building selection and assessment
- urban design and planning
- specialist surveyors – eg acoustic, geotechnical, agricultural, highways, traffic, rights of light
- accessibility
- archaeologists
- specialist subcontractors, eg groundworks, mechanical systems, communications, etc
- environmental impact
- environmental management (water, waste, energy)
- archaeology
- working with historic environments
- core team selection
- finance and costs
- market assessment
- procurement route and contract choice
- brief writing
- interior design
- a planning supervisor
- project management
- facilities management
- artists



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Archaeologists on a construction site

→→

Engaging an architect – Guidance for Clients on Quality Based Selection, RIBA/CIC, 1999.

→

More detail is given in Work sheets 1, 2 & 3.

→→

Additional information can be found in *A Guide to Quality Based Selection of Consultants: a key to design quality*, CIC, 1999

→

Design competitions are covered in Work sheet 5

2.9 Selection methods

There are several ways of selecting the project delivery team – designers and contractors – and there should be at least two stages to selection. ←

2.9.1 Pre-qualification

In order to demonstrate suitability for working on a project, organisations are often asked to pre-qualify. Conditions must be defined covering the main qualities needed in the team, such as intellectual, technical, physical and financial resources. A 'long list' of people all able to meet the pre-qualification criteria should be drawn up.

2.9.2 A short list

This is then narrowed down, with the help of an adviser, to a short list from which the final selection is made. Selection on the basis of fee tender alone is not recommended – it is unsuitable for the procurement of intellectual or creative service. Where price is being considered as one of the criteria, a balance must be sought that gives both the quality of the proposal and the fees tendered the appropriate weight. ←

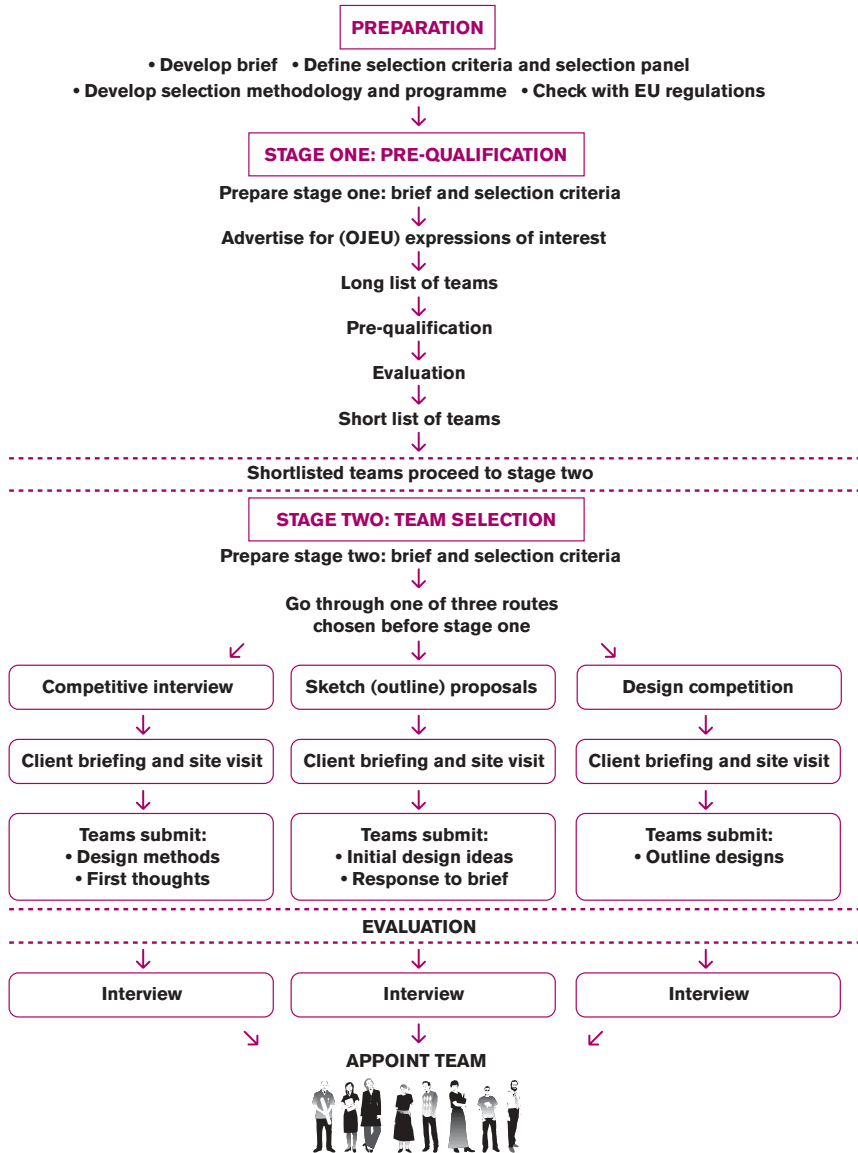
2.9.3 Quality based selection

A method described as Quality Based Selection (QBS) is sometimes used ←←. It applies particularly to designers and explains how to select them on the basis of quality alone and includes examples of evaluation formats. In essence a qualified firm is selected before fee proposals are developed and if necessary these are negotiated once the client and the consultant have worked together to develop an understanding and prepared a detailed scope of services. ←←

Fig 21: Selecting the right team needs care and time



Fig 22: **The selection process stages**
 Time spent on systematic selection is worthwhile



Box 37: Key principle for selecting the project delivery team

- candidates are treated equally and fairly
- the process is transparent and well run
- there is a genuine intention to proceed
- every candidate has adequate time to participate
- the information required for the 'qualification' stage is not too onerous
- all candidates are told the criteria for qualification
- all candidates have the same and the most up to date information
- all candidates are told all the necessary procedures
- information from candidates is treated in confidence
- unsolicited tenders are not considered
- the process is open to scrutiny
- the reasons for the final choice are justifiable to funders
- unsuccessful candidates are given feedback

2.9.4 Official Journal of the European Union procedures (OJEU)

Many projects must follow the detailed procedural and timetable rules set out in the Public Services Regulation of 1993. If the project is large and the client is either a public sector body or receives 50% or more funds from the public sector, the client must provide notification of a proposed choice of designer, building contractors or other suppliers through the Official Journal of the European Union (OJEU). The current project size thresholds are £154,477 (200,000 Euros) for service contracts (such as fees for design or other services) and £3,093,491 (5,000,000 Euros) for works contracts (construction costs). ←←

→→

Work sheet 3

2.10 The next stage

If you have completed all the above tasks the preparation stage is over and design development starts. Some of the activities discussed in this section may not be complete or may have to be revisited. However, it is essential that at the very least the need and business case for the design project have been reviewed and signed off before major funds are committed to design development. By this stage you probably have an in-house team, a brief, a budget and source of funds identified, a procurement route and the external team has taken shape. Design can begin in an unambiguous context.



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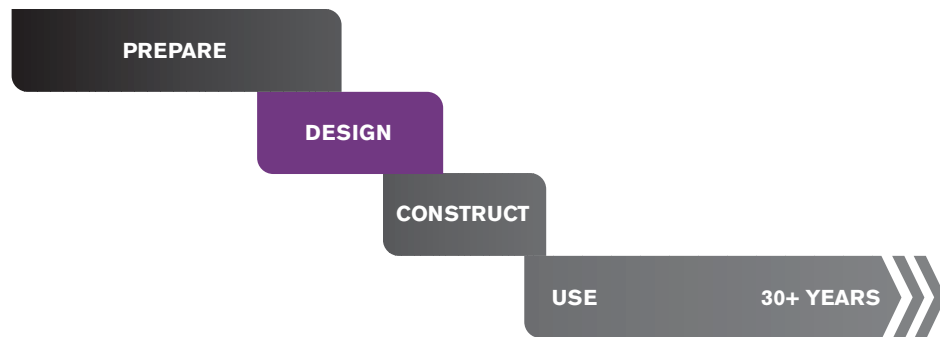
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to view in window

3 Design

During the design stage a major part of the effort shifts to the design team. How much the contractors are involved varies according to the procurement method, though early contractor involvement is now more common. During the preparation stage you have made many of the main decisions and taken on a professional team to develop and execute the project. By this point, an effective decision-making process

should be in place. Nevertheless, the success of the project still depends on client involvement, especially with regard to keeping the focus on design quality. You will need to give detailed information to the design team in the form and at the time it is needed. As the design team develops its ideas, your in-house team must check that these match the brief at the desired level of quality.



Box 38: The client's role during the design stage

Depending on the size of the project, many of these tasks may be carried out by a project manager.

Main client responsibilities

- see that you have all the information about how the project is progressing and access to necessary advice
- make sure that the drawings, specifications and project information are explained fully and communicated clearly
- carry out the required client tasks – the client adviser should clarify what these are
- make sure someone has the time and skills to manage the client role throughout the project, or appoint an external person to do so
- start planning for occupation

Developing the detailed brief

- ask the design team for a project plan
- clarify how decisions will be taken and how any changes will be managed
- work with the designer – don't leave all decisions to the design team, but having selected them, trust them
- for complex schemes, especially PFI, create a team to develop and check the large volume of detailed information needed before signing a contract

Cost, risk and value management

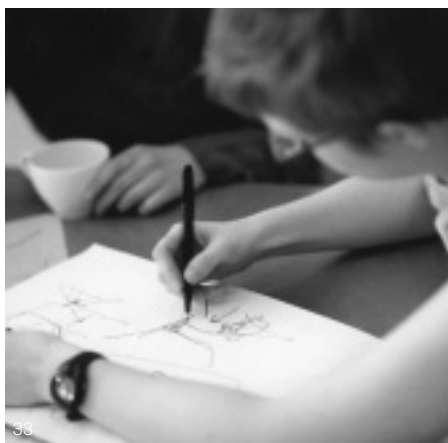
- ensure the team provides regular information about cost, risk and value – these may change with the progress of the project and you may need to act on this information
- if the design is not going the way you want or the designer is proving hard to work with, remember that drawing back before construction funds are spent, even starting again, is better value than getting the wrong result

Design quality

- review designs regularly, satisfy yourself about plans, dimensions and technical proposals at all stages
- ask the design team for a simple version of the design at its various stages in a three dimensional diagram or simple model
- review schedules of areas and room data sheets to incorporate into and compare with the brief and record any changes
- review support spaces carefully, including back-of-house areas and spaces to house building management activities
- only sign off proposals that you have fully understood
- use the Design Quality Indicator to see how your design measures up to your original aspirations ←←

3.1 The design process and the client role

Although relatively little money has been spent by the time the design stage is complete, the cost of construction and of running the building for many years to come has been set. It is therefore essential that the client understands the consequences of decisions taken during design.



3.1.1 The design process

The design process involves assembling a range of information about the client needs and the project context and interpreting these in a three dimensional solution. If a feasibility study has not already assessed the viability of likely designs and the value of a building project to meet the client's needs, this should be the first part of the design process.

The design becomes gradually more specific, starting with diagrams and sketches, moving through sketch designs to more complete designs of the entire building. This is followed by the detailed design of all the component parts and how they are joined together.

The process is described as iterative as it resembles a dialogue – pose the problem; offer a solution; clarify the problem; develop a more suitable solution and so on. A common language and shared understanding about quality aspirations and possibilities, which can be gained when building a knowledge base →, is needed for such a dialogue to be effective. The design is accompanied by written descriptions of what everything is made of – the specification, its purpose, how it may be used and how it could adapt over time.

During the design period all the required approvals have to be obtained as soon as enough detailed information is available →. A planning supervisor, whose remit is to ensure that health and safety issues, both for the finished project and for the construction process, are taken into account during the design should therefore be appointed. The planning supervisor → is often a member of the design team and the lead consultant or project manager should bring the requirement for a planning supervisor to the client's attention.

←
Box 5

←
Section 3.4

←
Section 2.8.4

3.1.2 Client communications

The client must provide the design team with the required information and is key to refining the detailed brief, then to signing off both the brief and the design as it develops. Appropriate people on the in-house team must check at all stages that the designers have accurately understood and interpreted the detailed brief in a way that will create a usable, attractive place. The usual communication method is regular meetings where progress is described and anything unclear explained. There will also be formal moments when design stages are signed off on paper, for example outline design (RIBA stage C), or detailed design (RIBA stage D). ←

After these points are reached it is hard to change agreed designs, as decisions are interdependent. Changes made after design has been signed off are likely to result in extra time and cost.

As the design develops it may influence the client's ideas about the way in which the building could be used. Any thoughts of this kind must be passed on to the design team and discussed in case they influence what the designers are able to create. Changes once designs have been signed off are very costly. At all stages the design champion must continue to seek the best possible design solutions, making quality checks against criteria and targets developed in the preparation stage.

→
Box 12



35

3.2 The detailed design brief

3.2.1 The purpose

The aim of the detailed design brief (referred to from here on as a detailed brief) is to communicate client needs and expectations. It should provide a clear description of the project, which can be understood by all those likely to use it. The detailed brief should not fix the form of the design. Rather, it should provide a clear framework that allows the design team to translate it into a solution that meets, and if possible exceeds, client needs and aspirations. Sometimes →→ the client's brief is expressed as outputs desired from the project, not as a list of items to be included.

3.2.2 From outline to detailed brief

For a small project, the outline brief may hardly change at the design stage. For more complex projects, many pieces of information and expanded details may need to be incorporated during discussion with the design team and the contractors. The designers' experience and, if they have been appointed, the builders, knowledge of 'buildability' will bring new insights and will influence the project's development.

The detailed brief draws together many sources of information. It follows, and expands on, an outline brief and/or feasibility study and summarises any important decisions made. It is influenced by the local land development plan and by the organisation's business plans. It is advisable to consult the local planning department before finalising the brief, and to conduct a feasibility or capacity study of the site to estimate the amount and type of accommodation that would be possible.

3.2.3 Contents of the brief

The brief should include the outcome of any specific technical studies, for example an access audit →, and input from authorities and any other stakeholders. The material in the outline brief → will need to be extended and defined in greater detail. The detailed brief should:

- summarise information available about the current condition of the building/site; the brief for surveys is normally drawn up by the architect and consultants
- provide relevant drawings and documents in appendices
- develop information from the outline brief, eg space types and quantities required
- define details as they become available, eg for large art works, so that locations and access are provided for in the design
- set out measurable performance standards and their sign-off points

Detailed data should be collected before finalising the brief, to establish suitable sizes and types of space needed. Any of the following can help collect information, prepare the brief and check it:

- members of the organisation
- specialists in brief writing
- the client adviser
- members of the design team

At all stages, test every need expressed and make sure it is not merely a wish.

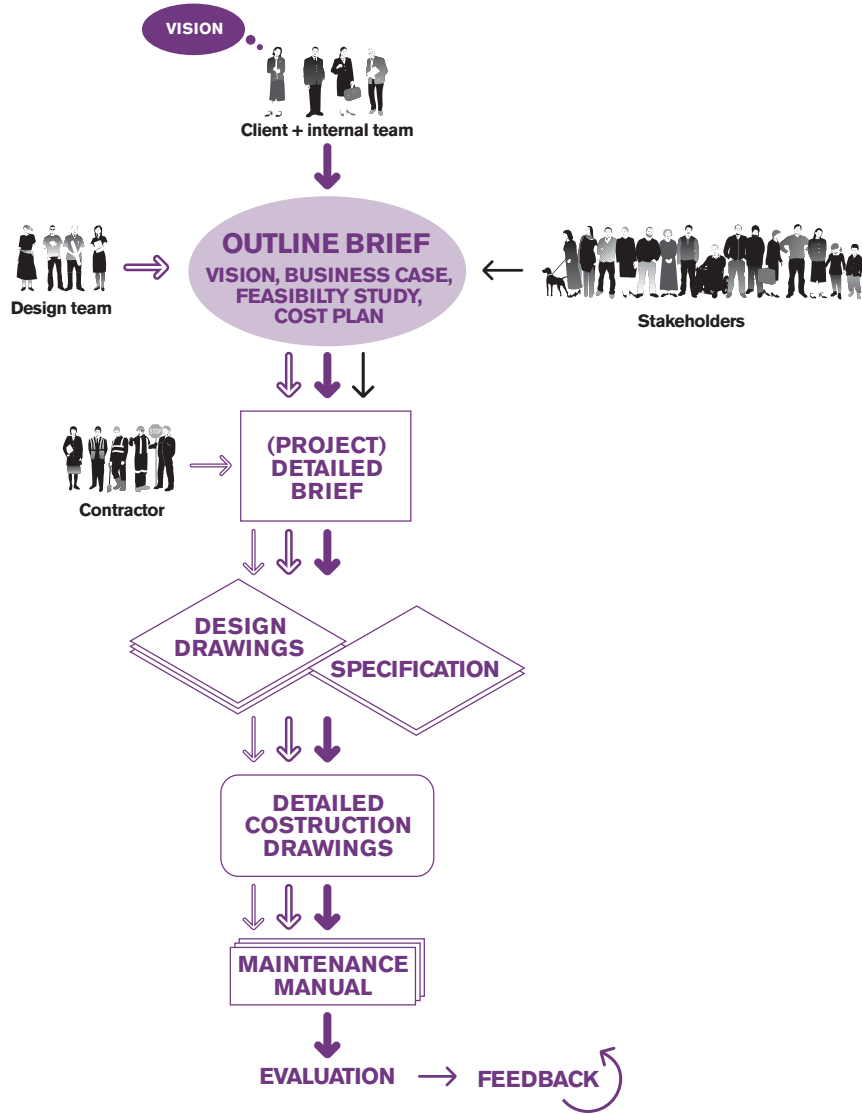
←
Glossary
←
Box 28

←←
Sections 2.4.1 and
Work sheet 4

Fig 23: **From the vision to evaluation**

The detailed brief uses information from the outline brief and the vision, and is the basis for the building evaluation. Team members will input at different stages. ←

→
Fig 14



3.2.4 Checking the brief

The design team develops and tests the brief through drawings, exploring the opportunities, costs and constraints. The team begins to give shape to the brief and may propose changing or rearranging the content. As information is firmed up, reference to past experience, feedback from other projects and on the effectiveness of decisions being taken should actively be sought to avoid repeating past mistakes.

The DQI methodology can be used to help develop the brief →. Design teams should already know government guidance and regulations, although the client may want to list sources that are a priority or specifically relevant.

The design team should include cost specialists who continue to develop a cost plan and programme in tandem with the design proposals. These outline the cost priorities and should be explicit about whether costs include, for example, landscaping, design fees, VAT and other costs.

←
Box 2

Box 39: Compiling the right information for the brief:

- briefs for a similar scale and type of project
- generic guidance (tuned to the specific project)
- empirical evidence about space standards and performance requirements – beware of conflicts with government guidance
- specific examples such as existing buildings and spaces
- a process of ‘public consultation as research’
- new research into the use of comparable spaces
- research into current use patterns and opinions from the organisation and building users
- costs defined in the initial feasibility study and checked as the design firms up

Box 40: Checking your brief

- When the first draft is complete it is worth reviewing it. Does the brief:
- explain the client’s organisation and current and planned activities?
 - clearly state client aims for the project and set limits for cost and time?
 - clearly state client expectations for design quality?
 - clearly identify sustainability targets in an auditable way?
 - require the design team to devise a method for including the input of artists or other specialists?
 - ask the design team to exploit the opportunities for links to adjacent public space and the wider context?
 - consider future flexibility and changing needs?

Box 41: Aspects of the detailed brief to consider before 'sign off':

The urban design context

- fitting into the local development plan
- the image and role desired in the neighbourhood
- views of and from the building
- scale in relation to neighbours and the location
- contribution to the townscape and pattern of streets/open spaces

Buildings and open spaces

- activity range to be accommodated and likely changes to needs
- adjacency needs of different groups or activities
- space standards for different activities
- typical numbers of people using or visiting at various times of day
- sustainability targets

Open spaces outside a building

- access – pedestrian, cycle, vehicle, goods – and parking
- signage, lighting and outdoor furniture
- outdoor functional areas
- relationships to building entrances, ground floor activity and with other spaces
- physical and visual connections
- safety and security
- provision for public art or artists involvement (including installation and maintenance)
- landscape, planting, outdoor maintenance and management
- sustainability targets
- the life of surface finishes and materials
- opportunities for public art
- servicing and services

Inside a building

- room/space data sheets including:
 - room or space type
 - atmosphere and design quality
 - times of use
 - how urgently required
 - number of occupants
 - activities
 - services required for these activities
 - overall area in square metres
 - relationship to other spaces
 - finishes and furniture
 - special needs for equipment, dimensions, environmental conditions, etc
- access and security requirements
- inclusion of any art works, planting, etc with installation and maintenance
- sustainable/green targets and whole life costs
- operational issues
- handover and handholding arrangements during the first year while systems settle down



3.2.5 Fit out decisions

Fixtures, fittings and equipment (FF&E) and information and communications technology (ICT) must not be overlooked. They have implications for cost, space, servicing, safety and acoustics. FF&E come in three categories: contractor supply and fix, client supply (ie find and buy) and contractor fix, and client supply and fix. Including FF&E in the contract will incur fees and contractor's mark-up and may deny the client the ability to write off costs against tax; however if the client supplies or fixes there are potential programme risks. Although these can, to an extent, be mitigated by the way a project is structured, clients need to be aware that they need advice at an early stage on the procurement and programme implications of these items. ICT can be a real headache. It is common for the contractor to provide the separate cable routes in line with a consultant's design but unless the ICT installation contract is signed, there is a risk that the installers will wish to vary cable and containment routes – often with serious consequences for cost, programme and appearance.



Stressing from the beginning that the mundane details, as well as the visionary concept, need to be considered will turn a quality project into a desirable building with a long and useful life.

3.2.6 Building operation decisions

Parts of the detailed brief directly affecting the future operation of the building need to be highlighted for detailed review and could eventually be turned into a maintenance manual and log book. Objectives for environmental performance, desirability of views, natural light, etc, should be set out clearly in the brief and their impact understood. This is the time to take enough advice to be absolutely sure that the systems being proposed are the simplest suitable for the project, easy to manage and use, and that the whole life cost and energy efficiency implications of these decisions will be kept in mind as the design progresses.

It is important to realise that decisions, for example on the amount of glazing, its orientation and shading, the amount of insulation and finishes, such as false ceilings, can have serious effects on the cost-in-use of a building. They also form the basic parameters that the environmental engineer will use to size the systems that control the environment and therefore must be considered from these points of view, as well as focusing on aesthetics and function.

3.2.7 Briefs for PFI projects

In a PFI project, the brief for building operation or facilities management is prepared at the same time as the detailed building brief. This is an entire subject in its own right, but many aspects are relevant to design quality, as the design affects the management in use →. A clear, detailed idea of the operational needs of the building is required, by both the client and the bidders, in order to calculate the operational costs into the future and to evaluate bids incorporating these costs. This may require information as detailed as the amount of soap and number of towels used, or the archiving policy for documents.

As at this stage client bodies are still accumulating such detailed knowledge, it is easy to make mistakes. However, there are benefits to having such a comprehensive understanding of how the building operates. It is recommended that only large projects, over than £20M, use the PFI as an approach. →

3.3 Testing the design

Planning Policy Guidance 1: General Policy and Principles (PPG1)

- 17. Local planning authorities should reject poor design, particularly where their decisions are supported by clear plan policies or supplementary planning guidance which has been subject to public consultation and adopted by the local planning authority. Poor designs may include those inappropriate to their context, for example those out of scale or incompatible with their surroundings.

The client should monitor and review design proposals as soon as they are produced. Most of the major aspects of a project are fixed at very early stages, typically during Outline Proposals, RIBA Stage C →, when design concepts match the 'big idea' to the needs described in the detailed brief. This is the crucial time to check whether the design has the desired quality, conforms to the brief, is affordable, is likely to get planning permission and be realised on time.

The design phase is often structured around design team meetings. Similar meetings with the client should be planned to discuss ideas as they take shape. Early planning for occupation can start now, making detailed decisions about the interior planning and use of the building. Special furniture and equipment may need to be ordered early and the design may benefit from early input by a fit-out team.

←←
Work sheet 4
←
Box 12

HM Treasury PFI: meeting the investment challenge, July 2003
←←



3.3.1 Testing against the business case and the vision

Design quality must be tested against the business case. This stage may see the ideas pass rapidly from little more than bubble diagrams, to drawings at a fairly detailed level, sufficient for a planning application. Simple three-dimensional models are helpful even at very early stages and will act as a 'reality check' as the drawings pass through increasingly detailed stages. They can be used to check the urban design impact, ie the effect of the building in its context. Also, it may only be possible to apply for some forms of funding once this stage has been reached. The client can reject or modify design proposals and should only accept ones that have been fully explained and understood.

During the early design stages there should be constant reference back to the client vision and outline brief, the feasibility, cost and business plans. Consideration of whole life costs of the design is vital at this stage. The client has generally only spent the money for consultants fees when design sign-off happens – a relatively small sum – yet even at outline stage the design commits future expenditure not only on construction but on the eventual costs-in-use. Once outline design proposals have been signed off, little can be changed without incurring cost, time penalties or both. Time spent ensuring that correct and complete information is in place before outline designs are proposed will help avoid changes at a later stage.

3.4 The approvals process

Most projects need several types of approval, some of which are straightforward, while others are lengthy to obtain, risky and, if withheld, may cripple the viability of the project. The design team should be aware of the building approvals required and should set them in motion. It is important to test early proposals against planning issues. This may start with simple checking of what type of use or building on the site is acceptable and then move to more detailed discussion about design. Early discussion with the planning department is advisable, especially if there is any likelihood of controversy or difficulties that may involve special requirements or lead to delay or refusal. The client must ensure that approvals specific to their particular organisation are taken into account in the design and applied for in good time. The tables below are not comprehensive but indicate the range of relevant permissions. Permissions for complex or controversial projects can take much longer than the minimum eight weeks – nine to twelve months may be needed in some instances.

Regulations and laws include controls applied:

- to buildings in general
- during and on account of construction activities
- to specific building types or sites
- to organisations as employers and building owners
- in situations where the public gathers

Box 42: Some examples of approvals needed for different reasons

Building in general	Building or site	Employers and building owners	Places used by general public
<ul style="list-style-type: none"> • Planning laws • Local Acts • Building Regulations • Construction Design and Management (CDM) regulations 	<ul style="list-style-type: none"> • Tree preservation • Listed buildings • Party walls • Contract law • Health and safety • Adjoining owners rights • Archaeology • Utilities • Highways • Water Regulations 	<ul style="list-style-type: none"> • Health and safety • Light levels • Disability Discrimination Act (DDA) • Property law • Operational Facilities Management • Insurance 	<ul style="list-style-type: none"> • Fire safety • Escape • Hygiene • Licences



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Box 43: Typical approvals required for buildings include:

Approval	By whom	Typical LEGAL MINIMUM decision time	Who should prepare
Planning permission	Local authority planning department	8 weeks	Design team
Listed building consent	Local authority and English Heritage	8 weeks	Design team and project sponsor
Landlord approvals	Landlord	Variable, as in lease provisions	Project sponsor
Building regulations	Local authority building control team	Throughout construction, signed off at the end	Design team
Fire certificates	Local area fire officer	Variable	Design team

→→

OGC *Achieving Excellence*
 N° 4 *Risk and value*
 management
 Section 6 for other
 references

3.5 Cost, value and risk

When clients end up dissatisfied with the projects they commission it is often because at the start they are unaware of the nature of construction projects and the intrinsic risks involved. Buying new buildings, each of which, however standardised, has unique features, is not like buying a car, prototyped, tested, mass-produced to particular performance standards. To some extent at least, each building is an experiment with the client as the guinea pig, so there are bound to be risks.

A project should be controlled by considering cost, value and risk periodically throughout its life.

Fig 24: **Cost control**
 How did the control slip?



As the project develops and more details emerge, the understanding of the risks changes and they must be regularly reviewed. There is a wealth of specialist literature on these subjects. ←←

3.5.1 Cost control

Cost control is part of the normal process of keeping a careful check to see that money is not wasted and targets can be met. Financial and project management expertise is needed. Although some of the tasks involved are the responsibility of the project manager during the construction project, the client's financial team must stay involved and keep the business case updated. A quantity surveyor – a cost consultant who checks design against budget – or someone with appropriate knowledge should control the cost throughout.

Cost control requires you to:

- plan required resources: people, equipment, materials and time
- estimate the cost of each resource
- record the cost plan
- evaluate costs against whole-life value
- monitor expenditure to check it matches expected costs
- monitor project changes to check they do not invalidate the cost plan
- update the cost plan as needed and co-ordinate this with the budget and cash flow



Building budgets are usually quoted in £ per square metre, sometimes per square foot. The areas referred to may or may not include walls, service areas, WCs, stairs and other spaces that serve the building. To avoid confusion, all terms must be defined clearly and used consistently and all assumptions explained. The difference between net and gross areas, for example, must be clear in any information provided by the design team →→. More details about using these measurements are available in Royal Institution of Chartered Surveyors, *Code of Measuring Practice – a guide for surveyors and valuers, 5th edition*, RICS books, London 2001. A quarterly review of building prices is also provided by the RICS through the Building Cost Information Service (BCIS) which can be used for testing feasibility studies and cost forecasts. →→

3.5.2 Value management

This is a name for a process in which discussions or workshops held at key points provide an opportunity to ‘brainstorm’ and see if better results can be achieved within the budget, or the same quality provided at a reduced cost. It should not be seen as inventing ways of reducing costs.

These discussions need to involve the whole team, including the users, and be formalised, minuted and the opinions considered and shared to ensure any suggested new approaches really are better than the old ones. The discussion format is a way of tapping into lateral thinking and ideas that may develop spontaneously out of conversation. It lets the client focus on practical issues in running the completed building and call for imaginative solutions.



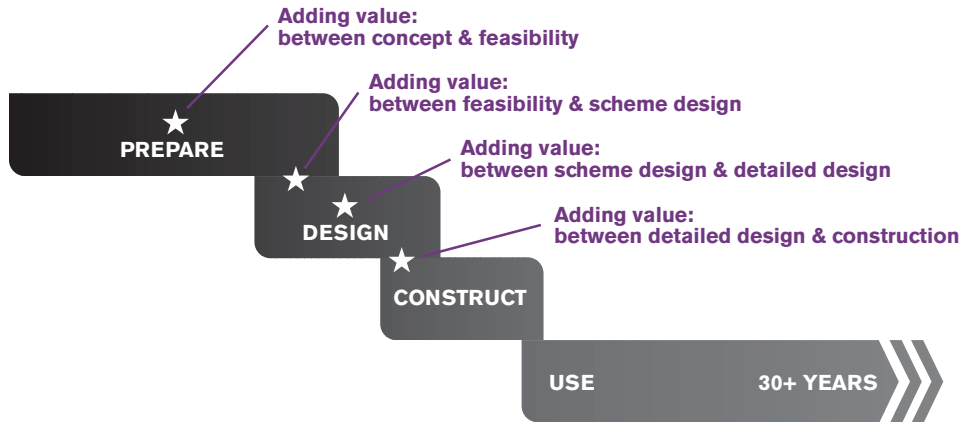
Glossary: area measures



www.bcis.co.uk

Fig 25: **Key moments for value management workshops**

Value management workshops or other assessments will be needed at several points in the process



3.5.3 Risk management

Construction projects are notorious for the many risks that people perceive to be involved – physical, financial and time-related. Some of the more common ones are the watch points listed in Box 9. Although some risks can be insured against, others cannot. However, understanding the level of risk will help ensure that realistic decisions are made and contingencies provided for. At an early stage, a feasibility study can help eliminate projects that would not be viable at all.

Assessment

Risk assessment asks 'what if?' questions to identify which risks are serious and which can be reduced. It must begin early and be continuously updated as the project progresses. The Construction Design and Management Regulations (CDM) make provisions for reducing some of the risks, especially to the health and safety of site workers and the eventual occupants of the building ↔. Risk assessment methods are formal processes for using common sense and creative thinking to visualise possible problems and work out ways to reduce the likelihood of them happening. They

→→
Section 2.8.4

depend on good communication, good documentation of ideas and decisions and agreement between all concerned about how the whole process will be handled. Workshops similar to those for the value management process can help.

Confrontation between the client and the contractor or other team members, differing objectives, hidden agendas and unstated differences of aims in the client body or among stakeholders can all present risks. In complex funding or shared-use situations, where a project is part of a larger development, the objectives of the funding or partner organisations may not be fully compatible or able to be resolved in the same time frame and this risk needs to be managed.

Management

Risks must be carefully assessed and a management plan to deal with them should be put in place. An appropriate sum, which will vary depending on the size and complexity of the project and the degree of uncertainty, must be set aside to cover any associated costs. The basis for authorisation to spend any sum set aside must be agreed. Clients and contractors will have different objectives and need to carry out independent risk assessments. However, each should have input into the other's assessments and good communication channels make this easier. Good team relationships are themselves an important way of reducing risk.

Box 44: Risk management

Risk management requires you to:

- put time and energy into appointing the best advisers, design and project teams
- obtain and consider objective advice, even if it is unwelcome
- put time and energy into defining the brief
- make use of feedback processes
- accept realistic targets
- keep abreast of progress reports
- avoid changes and keep to 'signed off' decisions until the contract is finished
- apply best value assessment balancing quality and cost

Risk management can help you to:

- deal with difficult circumstances if they arise
- minimise damage caused by identified problems
- identify and prioritise objectives
- identify and prioritise constraints on the project
- inform decisions
- have more efficient cost management
- improve accountability

3.5.4 Allocation of construction risks

One response to the perceived high levels of risk in construction has been to create contracts that allocate some risk, as well as control, to contractors or other players better able to manage them. In this way the associated costs and rewards are shared between the various parties. Clients' need to place risk where it can best be carried and to seek maximum effectiveness from integrated processes helped to increase the popularity of different design and build contracts and created the expanding list of procurement routes. PFI, for example, has developed from design and build, spreading construction and other building risks over, say, 25-30 years. This requires clients, designers and builders to have a lot of knowledge of what will be needed in the future. Developing this knowledge to a level where various parties can agree about its implications may in itself reduce uncertainties and risk. However not all risk can be passed on, even in contracts designed for that purpose. At the end of the day, the client will still be responsible for delivering functions within the finished buildings and therein lies the most important design risks of all.

3.6 Design quality

3.6.1 Design documentation

Any project involves a wide and varied range of design documentation at different times and which are essential for quality reviews. For example, early design ideas may be in the form of concept diagrams, while later drawings will be at a large scale and include very detailed information. In-house teams and the project sponsor may at first be unfamiliar with the type of documentation used for different purposes. Many people have great difficulty in reading plans, understanding the significance of sections or relating elevations to what a space will be like inside. Despite this they must make the effort to understand these representations. Three dimensional models, perspectives or computer visualisations are very helpful in these situations. The client must ask questions, however naïve or trivial they may seem, and continue to ask until everything is clear.



As well as drawings, the requirements for materials and construction methods and the way the building will perform will be developed from the detailed brief in the form of a specification. The specification is often a dense and repetitive document, which becomes an important part of the project information. While a client may never read the whole of a detailed specification, it is vital to understand what it implies in all its detail.

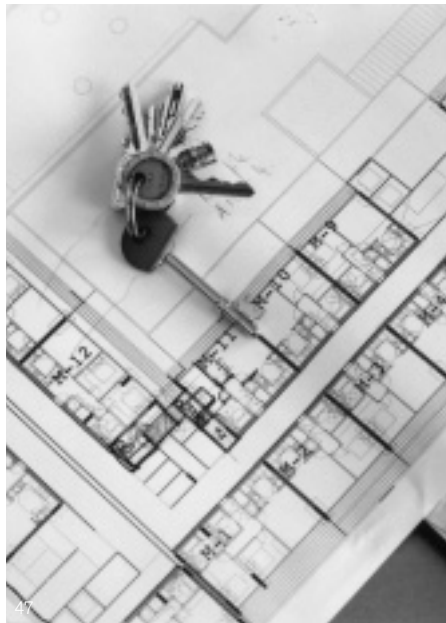
At the end of each design stage the client should be presented with a report that sets out:

- the updated brief
- the performance criteria
- the proposed solutions in terms of specifications and drawings
- specialist reports
- other support information

These should be in a form that allows the client both to understand the quality of the design proposal and be in a position to sign it off formally before moving on to the next stage.

The design team can help find appropriate ways of communicating information to the client. The size of a space being proposed can be explained by visiting similar places, by marking out the area on a floor, or by providing animated three-dimensional walk-through visualisations. Where necessary the design team can arrange a mock-up of planned spaces, perhaps in an empty warehouse or other cheap temporary space, with specimens of materials and products to illustrate how the specification will be met.





Box 45: Documentation to expect at different stages

Outline proposals (RIBA Stage C)

- drawings: plans, elevations and sections of the design concept
- specifications of the main aspects of the project
- models, either physical or computer representations, as appropriate
- a 'cost plan' showing the capital and 'life cycle' costs for these aspects
- a design, procurement, construction, handover/occupation programme, including all permissions required
- presentations for the client and stakeholders
- statement of how the design meets the client's needs

Detailed proposals (RIBA Stage D)

- drawings: plans, elevations and sections of all the components of the scheme
- specifications and schedules of all the components, defining the performance and/or material standards required
- detailed proposals for any artworks, including sketches, diagrams and installation methods and engineers notes or specifications if required
- a detailed cost plan showing the capital and life cycle costs for all the components

Final proposals (RIBA Stage E)

- The above information from all design disciplines, in sufficient detail to be able to co-ordinate all the components and elements of the project.

Source: adapted from Construction Industry Board (CIB)
Constructing Success, Thomas Telford, London, 1997

3.6.2 Design review

There is rarely a single best design solution; there may be several ways to achieve excellence. A quality assessment will help review how well the design meets the project aims and the detailed brief. This, along with early discussions with the local planning authority and, where relevant, other key organisations such as English Heritage, should be done before submitting a planning application if possible. The review should be comprehensive and include the construction plans.

Outside advice can be very valuable. A third party, with a bit of distance from the project, may be able to help review designs. A department design champion could take part. Funding bodies can sometimes provide or suggest a suitable person to act in this capacity. Also, if preliminary discussions have been held with the local authority, it may provide design advice. CABE's document *Design Review* gives some useful questions clients should ask themselves about design at key stages in the process and is based on the knowledge gained from the design review programme. →→

Box 46: A design review should consider:

- the site, the project context and the contribution made by the project
- landscaping, orientation, views, topography, public space
- access, transport and appropriate connections
- how well the organisation will be able to function in the building
- how well user needs are met in the open spaces
- sustainability/energy efficiency considerations
- whole life costs
- visual impact in various conditions – changing weather, time of day and year
- adaptability, suitability for different uses
- suitability and maintainability of materials
- servicing
- how well the many parts of the building/open space relate to each other



Design review case studies are available on www.cabe.org.uk

→
Section 5.5

3.6.3 Support areas

The spaces behind the scenes must be designed as carefully as the main spaces. Using the keen eye of someone experienced in building management during the assessment will help limit problems later. ←

- in some cases successful treatment of these aspects is a matter of judgement, in others of experience
- seek professional help where necessary
- avoid equipment that is too complicated for people to understand and run efficiently
- locate equipment where it can be serviced easily
- consider how the building will be managed in the longer term
- bring any necessary fit-out skills in at this stage so that specialists or interior designers can assess designs

→→
www.housingcorp.gov.uk

3.6.4 Checking quality

The design will go through several revisions – only by working on design ideas at all levels of detail can the various requirements for the project be integrated. During the design period, design quality assessment is a largely paper process and calls for the expertise of someone familiar with architectural drawings and specifications as well as cost information to ensure that the proposals are realistic. Practical

www.usablebuildings.com
→→

assessments are needed too, where proposed designs can be inspected as prototypes or in situations where they have already been tried, from the feel of a door handle and the ease of use of WC cubicles, to a roof shape or novel cladding systems. The client should be involved in this process, monitor suggestions, review precedents and attend regular meetings with the design team. Insist on proper explanations of proposals and don't be 'blinded by science'. It is also important to assess intrinsic aspects of quality, including interior space, light, volume, visibility and finishes.

3.6.5 Assessment methods

While quality assurance systems should be used for formal quality control, it is good team communication and trust throughout that lead to success and high quality. There are techniques for assessing entire building designs, or single characteristics. Some, while specific to particular building types or sectors, have wider relevance. For example, the Housing Quality Indicator ←← shows how furniture layouts are used to test room shapes for ease of use. At an early stage you should ask other clients and design teams about their experiences. There is likely to be plenty of information about ways even good, well-loved buildings fail in some aspects when in use. Feedback from assessment should be used throughout the project. A feedback resource has been developed to help clients and designers understand the assessment tools available and choose the relevant ones. ←←

Box 47: Methods for assessing different aspects of design quality

Design excellence

Design Quality Indicator (DQI), developed by the Construction Industry Council. This tool can be used at various stages, including as part of the process of checking overall useful design quality. It considers build quality, functionality and impact on users and the wider public. →→

AEDET This tool for Achieving Excellence in Design has been specially developed for health projects and parallels the DQI in its structure. →→

DEEP This is the MOD's Design Excellence Evaluation Process, which is similar to AEDET.

Environmental responsibility

The Building Research Establishment Environmental Assessment Method (BREEAM) evaluates designs in relation to their environmentally responsible features. It considers whether the building adequately considers fuel economy, waste and pollution, environmental diversity and transport. →→

NHS Environmental Assessment Tool (NEAT) is a sector specific tool that rates similar characteristics to BREEAM.

TM22 (CIBSE) assesses building energy consumption per unit floor area, and other aspects of performance, against established benchmarks from Energy Consumption Guide 19. →

Access audits – can be used at the design stage to review drawings and establish that accessibility for people with any type of disability – hearing, sight or mental impairment, as well as wheelchair users – have been suitably considered and well resolved. →

Best value performance indicators

A series of indicators against which performance can be measured, developed through the Office of the Deputy Prime Minister →. Key performance indicators (KPIs) are available through www.kpizone. Information about how to use KPIs is available through the Construction Best Practice Programme. → They cover many process issues, including client and user satisfaction.

www.cibse.org

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←←

Box 2 and www.dqi.org.uk

←←

www.nhsestates.gov.uk

←

Centre for Accessible

Environments

www.cae.org.uk

←

[www.local-regions.odpm.gov.uk/
bestvalue/bvindex.htm](http://www.local-regions.odpm.gov.uk/bestvalue/bvindex.htm)

←

www.cbpp.org.uk

←←

www.bre.co.uk

3.7 The next stage

When the design has been signed off construction can start. However some very detailed design aspects may not have been finalised, for instance, specialist subcontractors may not finish design of their particular elements until work is underway on site. However the overall design should have been agreed by client and stakeholder groups so that there will be no uncomfortable surprises when construction is complete.





Construct

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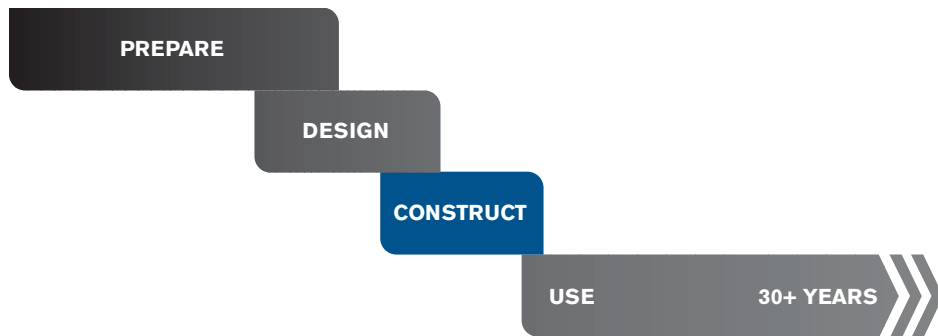
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to view in window

4 Construct

The construction stage begins when the project activity moves to site. The design phase may overlap with construction to a greater or lesser extent depending on the procurement route and the type of role

played by the contractor. By this stage you must be sure that the project satisfies all the stated criteria in the best way, because change is costly or even impossible once work starts on site.



Box 48: The construction stage

Client tasks

- understand the implications of proposed contractual relationships
- understand the construction programme and check that it meets your timetable requirements
- understand the contract documents – which include the actual contract and all supporting information such as drawings, specifications, the programme and so on
- take advice and guidance from your design team or adviser if needed about project progress
- inform insurers of the site start date (they should already have been told about the project)
- review decision processes to deal with unforeseen changes
- maintain awareness of cash flow obligations
- make payments when they are due, this will be advised by architect or quantity surveyor
- sign contracts
- hand over the site to the contractor

Consult and communicate with neighbours

- arrange site visits for staff (with contractors' permission)
- use communication projects, including viewing the site, for the local community

Keep in touch with the site

- request clarification of any unclear information or communications
- set up and maintain clear filing system for information about the project (contract, correspondence, etc) – this may be extensive depending on project management and procurement route
- encourage the project delivery team; arrange events to mark successful achievement of important stages
- keep lists of key items that need to be checked and signed off as built

Prepare for hand over (for non-DBFO projects)

- plan the 'move in' and dispose of items that will not be needed
- receive 'as-built' plans, specifications, supplier lists and equipment instructions
- arrange a full briefing on the building's systems
- consider feedback and learning from the project – continued team meetings to deal with problems or devise improvements may benefit this and future projects

4.1 The client activities during construction

There may be several construction phases, for example if enabling works, such as preliminary demolition, construction of new vehicle access, or a pre-grow contract to secure good quality large trees, are needed before the start. The construction phase is governed by the contract agreed between the client and the contractor – the company building or managing the construction of the project. The contract sets out who will make decisions and issue instructions on site to the contractor. The decision-making

role and authority to issue instructions varies, according to the procurement route.

Site visits are an important way for you to keep in touch with the progress of the project. You may even spot important details that have been missed by others or at earlier stages.

At an appropriate point during this period, operational commissioning must be planned and staff trained and/or recruited as necessary to ensure the smooth running of the building. Fit out and signage must be finalised and plans put in place for carrying out all the works required to transform the project into an operational and habitable building.



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4.1.1 The client's role

During construction the main responsibility for the progress of the project lies with the contractor. The client's role should be limited to:

- site visits
- making sure the team is carrying out its services adequately
- ensuring funds are available to make payments on the agreed timetable
- co-ordinating PR with the outside world
- understanding progress forecasts in terms of the project objectives
- controlling communication and direction from the client organisation to the design and construction teams in order to avoid confusing and conflicting messages
- avoiding changes and understanding the likely effect of any that become essential
- stimulating positive and constructive relationships
- preparing to take over the building at practical completion

The client may need other people at this stage, depending on the procurement route used. For example, in construction management contracts the client has a construction manager and a contract administrator who may be the architect, quantity surveyor or project manager. In some forms of procurement/contract, a site representative or employer's agent (eg a clerk of works, site architect, project manager or other specialist) can keep a watch on client interests.

The translation of the drawings and specifications into the finished building must be checked and a procedure set up for notifying and sorting out defects. Unexpected problems that occur during construction must not result in cutting corners to reduce cost, as this can reduce quality.

4.1.2 A creative opportunity

People can be involved in a project in many ways during the construction period. For instance, competitions can be held to photograph the project as it unfolds or to name rooms in the new building. Clients can encourage neighbours, future users and the public to enjoy the process of seeing the project come to life by observing its development through peep-holes in hoardings, by inviting them for site visits and parties, circulating a newsletter or setting up a website with photographs and information.

There may be an opportunity to use artists. Many major construction projects have appointed 'artists in residence' to document the scheme and involve staff and the public. Football clubs have used poets, theatres have used photographers and hospitals, visual artists.





The programme Building Sights, sponsored by the Arts Council and CABE, allows people to enter construction sites, either virtually or in person, to find out how buildings are made. Awards are offered to organisations that have provided site access and can demonstrate its public benefit. Any site access needs the contractor's agreement and strict management of health and safety. However, avoid diverting the contractor from his principal role – site tours take more time to organise than one might imagine.

4.1.3 Embed organisational change

This is the time to start implementing any organisational changes on which the design of the new building is based. Plans to change paper-handling routines, new arts and culture programmes, new classroom disciplines, new operational patterns in hospitals, new building management protocols, have to be explained and understood. This can be achieved by site visits, explanations of

drawings and models by the design team and visits to comparable finished buildings. Seeing the project on the ground can help people make the connection between the new processes and the new place.

4.1.4 Avoid late changes

The client should avoid introducing new ideas and demands for the building during construction, even when it is clear that some items could be improved. Even small changes at this stage are likely to lead to damaging increases in costs and/or the length of the programme. Some changes are much easier and cheaper to implement after the project is complete. Changes should only be agreed if absolutely necessary and the cost and programme implications are fully understood. Any such agreements need to be clearly signed off and recorded. In general, the process leading up to construction should provide the information needed to avoid such changes. If a change is really necessary it may best be incorporated after practical completion.

4.2 Procurement and contracts

This is a complicated specialised area and this guide is not a substitute for experienced professional guidance on procurement and contracts ←. Where major construction is to be undertaken, the contractor's team usually also has at least some design responsibility. Sometimes (eg for design and build projects) the contractor will have full responsibility to provide a finished building that meets the client's needs, including undertaking all aspects of the design. Depending on the procurement process, this reduces progressively to design of certain 'portions' of the building and responsibility for procurement of design and detailed drawings from the subcontractors when required or, in the case of construction management, detailed co-ordination of all elements, specialist components and trade contractors. Whatever the procurement

option, the design team relies on specialist subcontractors or manufacturers to complete detailed design of key specialist areas and provide drawings to the contractor/site team. Some of this may be carried out as part of the earlier design stage. Generally, early involvement results in better details from which to build and less likelihood of construction details being produced in a hurry. Existing partnering agreements between main contractors and their suppliers can be helpful to achieve this.

Depending on the procurement route, the main contractor may have been chosen and employed some time ago. A project may involve several contracts with different advisers, consultants or construction firms. All are designed to divide risks and responsibilities between different parties. Some will already be in place by this stage, such as those with the design team and other advisers. ←←

→
Sections 2.6 and 2.7 and Work sheet 1 cover the main procurement and contract issues that apply to the entire project and these should be consulted.

→→
Section 2.7



4.3 Planning the works

4.3.1 Dealing with disruption

The details of planning the construction process on site is the responsibility of the contractor. However, there are still things the client needs to consider, especially if the project involves construction on, or adjacent to, an existing site:

- the impact of noise, dust, traffic and other disturbance on client organisations or neighbours (it may be necessary to plan some works for evenings, weekends or slack periods)
- the effect of any enabling works that may be needed, such as changing entrances, site access, or building walls or internal partitions to separate new works from an existing facility
- the implications of planting seasons and how this relates to the rest of the construction programme
- whether members of the design, project management or construction teams will need space on the client premises
- whether any of the client facilities (catering, WCs, etc) will be available to contractors
- the effect of any periods of loss of water or power

The site should be maintained in the best possible way, which respects the people working on the site and provides the optimum conditions for excellent health and safety performance. Disruption to the neighbourhood and local community should be minimised. Clients can specify that their main contractor will register their building project under the Considerate Constructors Scheme (or a local equivalent such as the City of Westminster Considerate Builders scheme). →

4.3.2 Managing finance

Once the contractor has been appointed and starts making arrangements to start construction, funds start to be spent fast. The client usually has a contractual obligation to provide payments on a regular basis and must sort out cash flow before construction starts. Disputes over payments easily arise and any uncertainty about how to resolve problems will damage the project. This can be avoided if there is trust between all parties and a clear understanding of quality goals and what is required to achieve them, including prompt payments. Different procurement routes have their own processes for determining payment stages. In the traditional procurement route, payment is normally only made for work that has been completed according to the contract requirements. In some cases payment is also made for materials or elements that have been delivered to site or are stored off site.



www.ccscheme.org.uk



4.4 The construction programme

The construction programme should (if required by the contract) embrace all off-site activities such as sub-contractor design, fabrication and any off-site testing, using separate but linked documents. Considerable detail is essential for tracking progress and payments due for the construction phase. The main contractor usually prepares this in consultation with the client and the design team. Generally a project progresses to completion as fast as possible, since the construction stage is when there is most financial exposure for all parties. However, in some situations construction may need to be divided into several stages because of:

- site limitations
- neighbouring projects
- cash flow
- approvals

If it seems necessary, it should be discussed with project advisers and the contractor and decided early on, so that it is built into the contract and cost implications are agreed.

After the 'shell' →→ and interior are complete, the client organisation needs time to install equipment, train staff in its operation and start 'operational commissioning'. This should be reflected and noted in the construction programme. Planning for these activities should have taken place during the design stage.

4.5 Communication

The client has an important role ensuring that all necessary information reaches stakeholders in the project, including those who are not party to any of the contracts. Some projects will justify the creation of a specialist public relations role, for example if it has a big impact on the neighbourhood.

Staff need to be informed about the project's progress and will appreciate regular updates. Disruption caused by a move and any shift in the organisation's direction implied in the project always creates anxiety. People may focus this anxiety on the building project. Regular communication using newsletters, forums or a web site can help reduce staff concerns. Site visits are helpful but should only be arranged with the contractor's permission once the building is well advanced and can be understood.



←←
Glossary

Box 49: Communication during construction:

- plan regular meetings with the project team
- walk the site regularly, weekly if possible
- listen to comments from staff, donors, sponsors, neighbours and the press
- be available if rapid response is needed
- let staff and other user groups know how the project is progressing
- communicate significant changes to the relevant people
- invite the construction team to events in your organisation
- send out press releases to local newspapers/radio/TV stations, journals
- stage events, eg 'topping out' ceremony when the structure reaches its highest point, with press coverage (don't overspend)
- arrange completion events for project team and contractors before formal opening

→→

Section 2.8.4

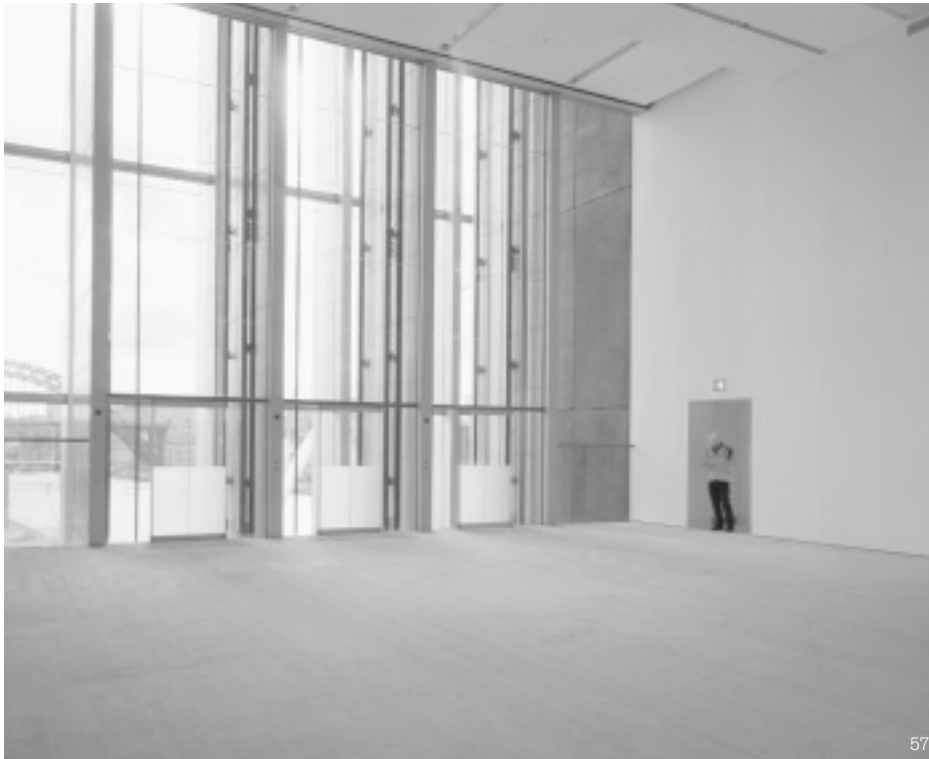
4.6 Towards the end of construction

The last stage of the building process, just before responsibility for the building transfers to the client, is a critical one. This is when the best information is available to the client about the finished building, how to maintain it and what transformations may be possible over time. The contractor will be required to hand over the health and safety file ←← and all 'as built' plans, manuals and instructions as agreed in the contract. As well as having a record set, you should check that they are 'readable' if in computerised format, set up systems to ensure that the information is available in a handy, manageable form for everyday use and train staff in its use.

4.6.1 Defects and quality control

As the building nears completion, frequent site walkabouts are a useful way of collecting information about issues that the client needs to understand before taking on the building. Despite hopes for zero-defects, there are likely to be some things that need adjustment after occupation, as well as modifications arising from changes in client requirements. Less obvious defects and problems and ones that only become apparent after a period of use, will need to be noted and corrected at agreed intervals during the defects period.

In most contracts, it is the contractor's responsibility to carry out the quality control necessary to ensure every last detail is completed to the standards set out in the contract. During the construction, particularly in the latter stages, the client's consultants may prepare lists (sometimes termed 'snagging' lists) or reports on any defective or outstanding items. These are



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primarily for the benefit of the client, to keep them informed of the situation on site. In some projects they are also issued to the contractor, but this does not affect the contractor's responsibility for carrying out thorough and regular checks. The building contract frequently sets a period, usually 12 months, during which the contractor must put right any failures that have come to light. This is called the Defects Liability Period (DLP). It may be appropriate to offer incentives or penalties in the contract so that the contractors deal with these final issues speedily.

4.6.2 Finalising plans for use

At this stage in the project, the person or team that will manage the building can finalise the management plans and the additional items required to make the building fully operational. If outside organisations are to provide services, for instance catering, running a shop, management of reception and security, or cleaning, the prospective contractors will need to see the site and be given copies of the construction drawings at the earliest opportunity.

4.6.3 Handover/final touches

When the contract is complete, the contract administrator or employer's agent issues a certificate of practical completion and the building is handed over to the client. There may still be very minor details unfinished at the agreed completion date but the temptation to take on the building too soon should be avoided.

The handover date will have been set at the outset of the construction work and any reasons to change it will have been discussed and agreed in writing. This is the moment when the building becomes the client's responsibility (except in contracts such as PFI which include the operation of the building) and there should be no surprises. What the client is taking on should have been checked against the

brief, the design and the contract. If there are problems because of omissions, time will be needed to solve them.

After the handover the contractor is no longer responsible for costs incurred by the client due to any delays and has no right of access to the building except to make good defects. The client becomes responsible for insurance, security and maintenance.

Although the building systems for heating and ventilation are commissioned before handover, they are likely to need fine-tuning once in use and it may take months before they work as intended. In particular, low energy designs often need extensive fine-tuning and this should be taken into account from the start. <<

→→

Section 5.3



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Box 50: Arrangements that must be in place at handover

- procedures for reporting defects and giving contractors access to remedy them
- operation and maintenance of all systems
- timing and frequency of landscape and open space maintenance
- insurance for building, equipment, contents and artworks in public spaces
- transfer of meters to new owner after final reading
- obtaining certificates of compliance with regulations
- obtaining guarantees and warranties
- taking over loose equipment including keys
- obtaining construction record information
- health and safety files
- security and any policing of open space as required

Source: Adapted from Potter, M, *Planning to Build, A Practical Introduction to the Construction Process*, CIRIA London, 1995

4.7 Fit out and user needs

The completion of construction and the installation of specialist equipment may not take place at the same time, and fit out generally cannot start until construction is complete. Even in a building tailored to the organisation, fit out – buying and laying out furniture, equipment, accessories, art and plants – is a separate stage. Many clients lose control of design quality with the choice of furniture, because the budget is running out and insufficient sums were ring-fenced at the start. Art and careful treatment of open spaces may be serious victims at this stage and sometimes get omitted altogether.



To avoid this happening, unusual non-standard requirements like these should be stated early in the design process. They should be budgeted for and taken into account during design to avoid creating impractical conditions, for example where a large art works need to be brought in but no suitable opening has been left. In many cases furniture and equipment has to be planned and chosen before the design is finalised, to ensure proper integration and sufficient budget.

For large or complex projects, fit out may involve a different team of designers and contractors. Many of the decision processes for other stages need to be repeated. It may be tempting to use the same team to save repeating the selection processes, and use the good relations and knowledge built up during the project. However, if the design and construction team do not have the specialised skills and expert knowledge needed for such a fit out, a separate team may be needed and should be appointed using a thorough selection process. This appointment should be made early on and the fit-out team should be involved in design decisions, so that relevant issues can be taken into account during design.

During the development of the fit out, people with detailed knowledge of how the building will be used should act as 'champions' for the various functions or user groups. Using existing staff is an obvious choice, but if they don't have time or have yet to be appointed, an external team should be made responsible for collecting, checking and passing on the information.

4.8 The next stage

This is the end of a long, complex process: construction is finished, the building is ready to be occupied. Moving in and starting to use the building is the next stage. There are, however, still many tasks to be done and people from the project team will need to devote time to the finishing touches and to feedback for continuous improvement.



Use

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Contents

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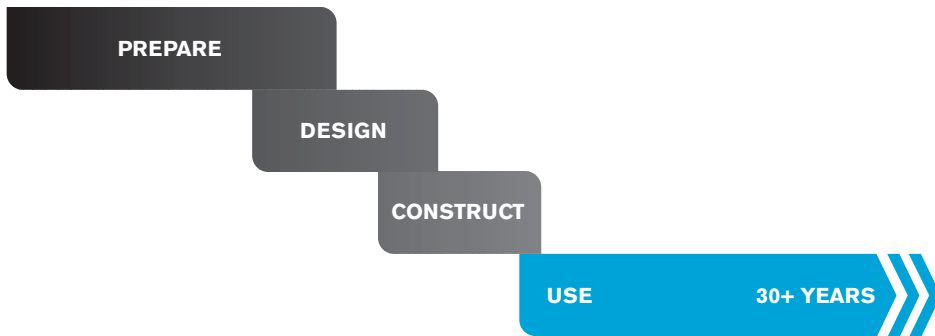
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to view in window

5 Use

The end of construction is when the project starts its independent life. The client takes it over and lives and works with it. It should say something good about the

organisation, delight the stakeholders and be an asset to future generations. A building that is excellent to use will be a pleasure for a long time.



5.1 Preparing to use the new building

Preparations for using the building must start well before construction finishes and must be co-ordinated: a team responsible for gathering and understanding the required information, with individuals responsible for each particular aspect is needed.

The new building may change many of the ways people work. Preparation for these changes done at earlier stages is now put to the test.

- If more staff are needed, recruitment must be organised and induction can be combined with training for using the new building.
- Security systems are likely to have been modernised, catering or public areas may have been totally changed.
- The way visitors should be treated and how they can be made at home in the new building should be planned.
- Staff will need information about all aspects of a new building and a new location. They will need to know about new working rules, where to buy lunch, whether new delivery arrangements are needed for existing suppliers and how people with disabilities will use all the facilities.
- For large projects it is useful to produce a move-in guide, which can then be updated and used for future recruits. If a staff user group was set up to help define the brief ←←, it can gradually be transformed into a staff move-in group and help decide what information the guide should cover.

→→

Section 2.2, 2.4

Fig 26: The day has arrived



5.2 The launch

Orientation for staff not involved in running the building will be needed. A successful launch can help shape the reputation of the new facility and can be valuable as a way of boosting staff morale, letting the public know that the building is open for business and announcing to funders and other stakeholders that the project is complete.

A public launch must be planned with care and specialists used if necessary. It should not take place too soon after hand-over. A formal opening should not be planned until use of the building has settled down. There may be construction defects to put right and new equipment to understand before a launch can be held. Publicity material explaining the intentions and design behind the new facility should be made available for staff and visitors and large projects may need staff or volunteers to show visitors round for several months after opening.

There may be scope for different opening events such as:

- private previews of the building, particularly for project funders
- a test launch to trial the staff routines
- events for the project delivery and construction team
- staff and stakeholder previews
- press launches
- hosting a special competition for relevant activities to attract publicity
- a main opening by a public figure, local dignitary or national celebrity





5.3 Fine-tuning and making good

When it is handed over to the client/user the building is like a ship that has just been launched but has not yet had its sea trials. Many systems need to be tested and fine-tuned – commissioned – such as lifts, lights, security systems, heating, plumbing and drainage. They will have been tested in the course of installation, often independently of each other, but not yet tried in normal use. As equipment starts to be used, the systems need balancing until they work as planned. It is only once the building has been occupied for all four seasons that complex heating and ventilating systems, for example, are fully tested. People running a building have to get used to the systems. A small simple building with domestic-scale systems will be up and running almost immediately but, for a complex building with innovative systems, it will take at least a year to complete commissioning and reach normal operations.

Fine-tuning and making good defects may involve disruption to activities in the buildings because of moving furniture, wet paint, temporary loss of power or water supply. Dates of works should be agreed with the contractors and notified to the building users who will be affected.

5.4 Building management

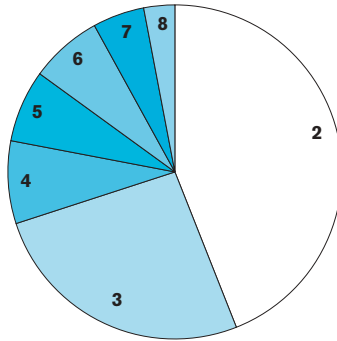
From the start, the objective has been to deliver high quality. Part of the aim is to produce a building and grounds that are manageable. A small building may be managed by one person part-time, while for a large or complex building a whole facilities management team may be needed. Cleaning, minor maintenance and servicing of equipment and systems are all affected by the design and quality of the building. Some items such as spare fixings and extra replaceable finishes should be purchased as part of the construction budget and kept for use when damage occurs. Adequate space for servicing and maintenance access should be designed in and carefully checked at the outline design stage.

The greatest costs of the building are incurred after it is built, on maintenance, repair, renovation and day-to-day management – cleaning, security and so on. A building is relatively inexpensive to construct compared to the running cost during its life and the investment in people while it is being used. The ratio 1:5:200 → for the construction cost: running cost: staff costs for a typical office building is often used to highlight this fact. The briefing and design decisions made much earlier in the project have a major influence on these later running and maintenance costs. You now have the opportunity to reap the benefits of decisions well made, with whole life value as the guiding principle.

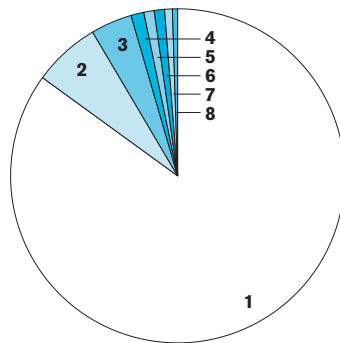
The people who manage the building are also important. Buildings perform better when run by effective and dedicated staff who have been properly trained and are supported by the organisation.

Fig 27: Exemplar 25 year expenditure profile of office occupiers

Including salary costs



Excluding salary costs



	Including salary cost	Excluding salary cost
1 Salaries of occupants	85%	
2 Building – construction cost	6.5%	44%
3 M&E services – running & maintenance	4%	26%
4 Furnishings & furniture – capital cost	1.25%	8%
5 Building – maintenance	1%	7%
6 Cleaning, security, etc.	1%	7%
7 M&E services – depreciation	0.75%	5%
8 Furnishings & furniture – maintenace & depreciation	0.5%	3%

Source: Davis Langdon & Everest

5.4.1 Building systems

Facilities management knowledge should have been incorporated at the design stage. Appropriate training must be devised and provided for those using and maintaining the building systems, providing cleaning, using catering or other equipment. Various aspects of management, such as security systems, should have been decided on and integrated into the design from the start. Retro-fitting such systems can be very expensive and is often hard to integrate into the design details.

Systems for heating, ventilation, lighting and so on should have been designed taking into account the level of management time and expertise likely to be available. A frequent problem, especially in buildings with complex environmental requirements, is that systems are too sophisticated for the operatives involved and do not get used to full efficiency. Some materials may have warranties that are conditional on regular or special cleaning. Regular cleaning, careful maintenance and sympathetic changes will keep the building at peak performance.



5.4.2 Building management in PFI projects

In some projects much of the building management will not be the direct responsibility of the user. In PFI and similar schemes, the contractor may have taken on the management for many years after completing the design and construction. This means that all the decisions about what the client expects and needs from a well-managed building will have to have been set down and planned in the very early stages, before choosing the SPV to carry out all aspects of the project. This is a relatively new type of procurement and knowledge about it is still developing.

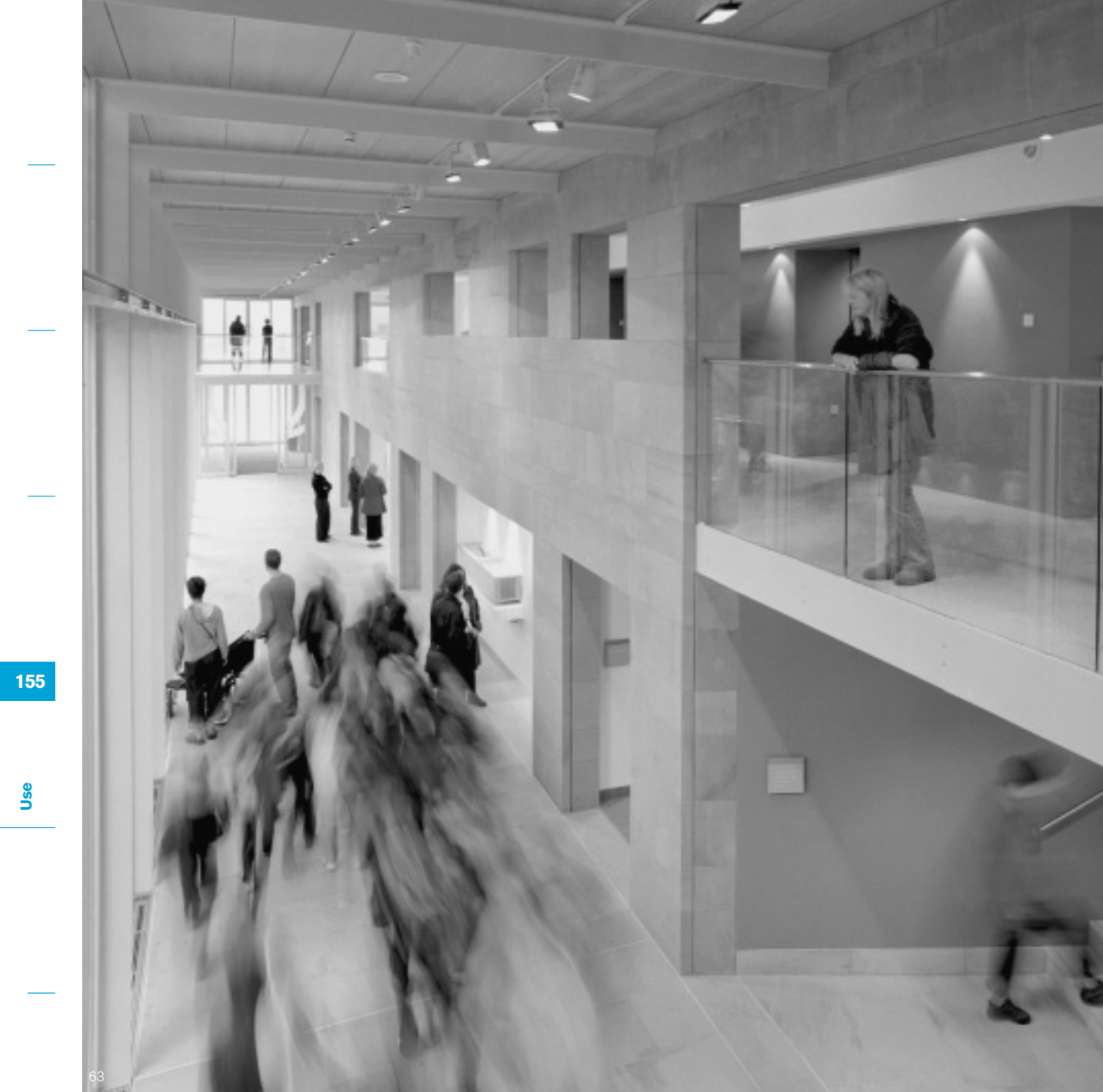
5.5 Evaluation and feedback

After move-in it is important to check whether the project's aims have actually been met. Monitoring against the original objectives is an important part of checking that the business case has been met and it may well be a condition of funding. Is the state-of-the-art hospital achieving the intended patient outcomes? Is the new sports facility helping to meet sport development goals as planned? Have the low energy use targets been attained in operation so that the energy labelling information (soon to become mandatory) can be verified? These questions cannot be fully answered in the first few weeks but plans and procedures must be put in place to ensure that they are in due course.

5.5.1 Evaluation

Evaluation may be carried out using general purpose tools or others focused on specific types of project. User satisfaction, energy efficiency, space efficiency and whether the procurement process was smooth all need to be measured differently. Methods include:

- questionnaires
- focus groups
- monitoring room bookings or ticket sales in public venues
- observation of use patterns
- matching areas used for different activities to those planned at the briefing stage
- checking energy use against targets
- tracking the project successes and failures.



These are all useful techniques which can be used during the project, for post occupancy feedback immediately after completion and over the life of the building. Some have been in use for many years and can provide helpful background and benchmarking information. →→

The Design Quality Indicator can be applied to any project and is very useful at this stage. Whether or not it was used earlier in the project to define design objectives, it can be used now to assess how well the building is performing under each of the categories. →→

Other benchmarks are available, against which people can assess how well various aspects of the project perform. Key performance indicators (KPIs) have been developed, which provide benchmarks for the success of the process →→. Studies such as

PROBE are described in Usable Building's feedback resource. This was carried out on buildings where energy performance has been expected to be good, to see if they actually met their targets.

5.5.2 Feedback

Feedback allows knowledge from completed projects to benefit a new project in its early stages. It throws up useful information as the design is developed and built and can help shape the life of the new building. For organisations which commission a series of projects, feedback about the process, the final product and its quality will be valuable for the next project. The building will see changes and renovations in its long life, for example renewing boilers that have a shorter life than the building shell. Even if your organisation has no plans for further projects, other clients can benefit from your experience.

Jaunzens D, Grigg P, Cohen R, *Building Performance feedback: getting started*, BRE, 2003



www.useablebuildings.co.uk provides information and explanations about many feedback systems including PROBE, Soft Landings, Learning From Experience, and the DQI.

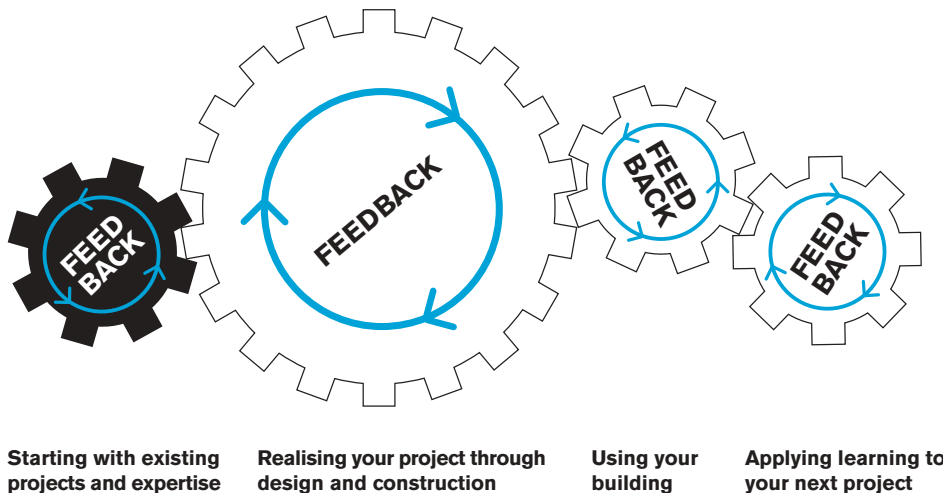


Box 2



www.kpizone.com

Fig 28: Use feedback throughout and after the project



Feedback during the building's first year, when systems are still settling down after commissioning and need to be fine-tuned to work as intended, should be built into the project programme and a specific approach should be agreed at the outset, carried out and recorded. Feedback processes involving the teams involved in providing the building, the designers and the contractors are becoming better established and have proved very valuable to many organisations. They may take the form of regular or one-off workshops. These seek to identify the best aspects of the outcome, in both process and product, and to identify things that did not work

well, not in order to apportion blame, but to correct them where possible and avoid them in the future. This type of process may take place at various stages of the project, as well as at the end and after the building has been in use for a period.

5.5.3 User input

After the initial period of familiarisation, users should be asked to report back on how well the facility works, and suggest any immediate improvements. The same group of users who helped give input into the project as it was being conceived and designed may be asked to provide feedback on its operation. They should meet from time to time, say



fortnightly at first, then monthly when any initial problems have been resolved. One person should be tasked to do a full building 'walkabout' regularly, say weekly, to report any problems and see that action is taken to resolve them. Members of the public who are using the facility should be given an opportunity to report any issues, positive or negative. A 'comments' box at reception is one way of gathering their views. This will enable small issues to be dealt with before they become an irritation. More fundamental problems should be passed to the team that worked on the project.

5.6 The next 30 years

Respect for a good building will help retain its quality over time and ensure that people still use the facility so that it continues to meet the goals of the organisation. The client team and the delivery team have taken great trouble during the entire project, co-ordinating and checking, deciding and choosing. Now, at the end of the project, equal care is needed to see that the right people are in place to care for the building, ensuring that management responds to new needs and that project success continues through the life of the building.





6 Contacts & References

This section starts with a description of the current construction context. Contact details are given for organisations in the construction industry and government bodies that are closely involved in raising standards of performance and design of buildings. This is followed by general contacts and references. Many of the organisations listed provide extensive material that can be downloaded free from

their websites. CABA provides publications and a digital library accessible to all. Specific contacts and references follow for open space and for eight general building types: arts and culture, civic, education, health, housing, retail, sport and workplace buildings. Where there is overlap, some references and contacts may be cited only once. Some references are only given in the text of the main document.

6.1 Construction industry and government initiatives

Rapid change, increased international competition and periods of economic downturn have made members of the construction industry conscious of the consequences of unsuccessful projects. The history of disputes and the evidence of the effectiveness of other countries' construction industries created a surge of energy during the 1990s to improve and transform the industry. This is being carried forward and has generated many initiatives for reform. Information about current activities, new reports (such as *Rethinking the Construction Client* and *Accelerating Change*), demonstration and benchmark projects are available on the websites of the various trade organisations. Currently the organisations that have been grouped under the Rethinking Construction umbrella are being brought together with the Construction Best Practice initiative in a new organisation, Constructing Excellence. This organisation will build on the successes of the organisations it is replacing, retaining the experience of the teams involved. A new website is being constructed to cover material provided by both organisations.

6.1.1 The Latham report

Sir Michael Latham's review sought to identify the underlying reasons why the UK construction industry was performing less well than its competitors abroad and failing to satisfy its clients. The preliminary report, *Trust and Money*, and the final report, *Constructing the Team*, published in 1994, stressed that 'clients are not an optional extra in the construction process but should

be at the core of it'. As a result of the report, several working groups were set up to review the main issues that it identified as creating problems for all players in the industry, including clients. These groups each produced reports, which were published by Thomas Telford during 1996–7. Ones that are current are:

- 1 Briefing the team
- 2 Constructing success: code of practice for clients of the construction industry
- 3 Code of practice for the selection of subcontractors
- 4 Code of practice for selection of main contractors

6.1.2 The Egan report

Rethinking Construction followed in 1998. The report, published by the Construction Task Force chaired by Sir John Egan, identified five drivers for change to bring about essential improvement for the industry as a whole:

- 1 committed leadership
- 2 a focus on the customer
- 3 integrated processes and teams
- 4 a quality driven agenda
- 5 commitments to people

Following the closure of the Construction Industry Board in 2001, the DTI established a Strategic Forum for Construction, chaired by Sir John Egan, which produced *Accelerating Change*, which describes how to develop the change agenda for industry improvement. The construction industry took over ownership of the Strategic Forum in September 2002 and appointed Peter Rogers as Chairman of a new body which

brings together the leading umbrella bodies from industry and clients together with 'Constructing Excellence' and specialist training and research groups. The Strategic Forum, which is hosted for the industry by the Construction Industry Council, is committed to achieve six headline targets:

- to increase the number of projects undertaken by integrated teams – 20% of projects by value by 2004, increasing to 50% by 2007
- to increase the number of clients embracing the principles of the clients charter – 20% of client activity by value by 2004 increasing to 50% by 2007
- to recruit and retain 300,000 qualified people by 2006
- to achieve a 50% increase in applicants to built environment H/FE courses by 2007
- to have a fully trained, qualified and competent workforce on all projects by 2010
- to enhance the value of the product through the use of design quality indicators

A group to bring clients together, the Construction Clients Group, has also been set up.

6.1.3 Constructing Excellence

This new organisation, bringing together Rethinking Construction and Construction Best Practice, will continue to support and encourage clients and other participants in the construction process through demonstration projects, discussions, meetings and by disseminating information. Their key messages are summarised below. Following

these key principles, which are supported by CABE, will assist in achieving good design of the process, the concept and the finished building:

- create teams that will operate in an integrated, collaborative way, linked by mutually supportive contracts
- do not equate best value with lowest price; incorporate whole life costs
- measure performance and commit to continuous improvement

6.1.4 Rethinking Construction

A cluster of associated initiatives was set up under the banner of *Rethinking Construction* → to help carry these ideas forward. The bodies that were set up to help drive forward the desired changes and improvements focused on three areas, local government, housing and general innovation to improve efficiency:

← www.rethinkingconstruction.org

- **The Construction Best Practice Programme** – www.cbpp.org.uk

This initiative was set up to provide support to individuals, companies, organisations and supply chains in the construction industry seeking to improve the way they do business. The programme offers a range of services to help raise awareness, gain commitment, support action and facilitate sharing.

- **The Housing Forum** –

www.thehousingforum.org.uk
The Housing Forum aims to bring together parties in the house-building supply chain committed and ready to become part of a movement for change and innovation in the construction industry.

- **The Local Government Task Force** – www.lgtf.org.uk

The LGTF was established in 2002 to encourage and assist local authorities to adopt the principles of *Rethinking Construction*. As some of the country's biggest spending clients on construction, maintenance and repair works, it is vital that councils achieve the improvements and savings that *Rethinking Construction* can bring.

- **The Movement for Innovation** (M4I) – www.m4i.org.uk

Rethinking Construction proposed the creation of a 'movement for change', which would be a dynamic, inspirational, non-institutional body of people who truly believe in the need for radical movement in the construction industry. As a result, the Movement for Innovation was launched in 1998 to facilitate this cultural change.

6.1.5 Government clients

The government, through the Office for Government Commerce (OGC) articulates a clear methodology for central government clients to follow when procuring construction projects in order to achieve best value. The *Achieving Excellence in Construction* initiative is based on understanding how projects in the past have often failed to meet client expectations, both in terms of cost and programme overruns. Strategic targets to help departments build on the progress already made in taking forward *Achieving Excellence* and to achieve a wider adoption of the principles were announced in February 2003. Supporting guidance has been developed, reiterating the central message from *Rethinking Construction*

and *Accelerating Change* – that best value is not equivalent to lowest price. The optimum combination of quality and costs over the lifetime of the building is the goal.

The OGC's Successful Delivery Toolkit (web based and on CD) describes proven good practice for procurement, programmes, projects, risk and service management. The Toolkit brings together policy and best practice in a single point of reference. It helps ask the critical questions about capability and project delivery and provides practical advice on how to improve. The *Achieving Excellence Procurement Guide* series, a key component of the Successful Delivery Toolkit, reflects developments in construction procurement over recent years and builds on departments' experience of implementing *Achieving Excellence*. <<

The suite consists of three core and eight supporting documents:

Core guides

- 1 Achieving excellence: initiative into action
- 2 Project organisation: roles and responsibilities
- 3 Project procurement lifecycle

Supporting guides

- 4 Risk and value management
- 5 The integrated project team: teamworking and partnering
- 6 Procurement and contract strategies
- 7 Whole life costing and cost management
- 8 Improving performance: benchmarking and performance management
- 9 Design quality
- 10 Health and safety
- 11 Sustainability



Further information is available on the OGC website.

6.2 General contacts

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London SW1P 1RT
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F 020 7808 1499
enquiries@4ps.co.uk
www.4ps.co.uk

Action Energy

(successor to Energy Efficiency Best Practice Programme)
www.actionenergy.org.uk

Architecture Centre Network

The Tower Building
11 York Road
London SE1 7NX
T 020 7960 2441
www.architecturecentre.net

Arts Council England

14 Great Peter Street
London, SW1P 3NQ
T 020 7333 0100
F 020 7973 6590
Infocapitalservices@artscouncil.org.uk
www.artscouncil.org.uk
www.artscapital.org.uk

Building Futures

www.buildingfutures.org.uk

Building Research Establishment (BRE)

Garston
Watford WD25 9XX
T 01923 664000
enquiries@bre.co.uk
www.bre.co.uk

Building Services Research and Information Association (BSRIA)

T 01344 426511
www.bsria.co.uk

Centre for Accessible Environments

Nutmeg House
60 Gainsford Street
London SE1 2NY
T/minicom 020 7357 8182
F 020 7357 8183
info@cae.org.uk
www.cae.org.uk

Chartered Institute of Building

Englemere
Kings Ride
Ascot
Berkshire SL5 7TB
T 01344 630700
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Reception@ciob.org.uk
www.ciob.org.uk

Commission for Architecture and the Built Environment (CABE)

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11 York Road
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F 020 7960 2444
enquiries@cabe.org.uk
www.cabe.org.uk

Community Fund

St Vincent House
16 Suffolk Street
London SW1Y 4NL
T 020 7747 5300
enquiries@community-fund.org.uk
www.community-fund.org.uk

Confederation of Construction Clients (CCC)

www.ClientSuccess.com

Constructing Excellence

T 0845 605 55 56

(part of Construction Best Practice Programme)

www.cbpp.org.uk

Construction Best Practice Programme

PO Box 147

Bucknalls lane

Garston

Watford WD25 9UZ

T 0845 605 55 56

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Construction Industry Council

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London WC1E 7BT

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F 020 7580 6140

cic@cic.org.uk

www.cic.org.uk

Construction Industry Research Information Association

T 020 7222 8891

www.ciria.org.uk

Department for Culture Media and Sport (DCMS)

2-4 Cockspur Street

London SW1Y 5DH

T 020 7211 6000

enquiries@culture.gov.uk

www.culture.gov.uk

Disability Rights Commission

DRC Helpline

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Stratford-upon-Avon CV37 9BR

T 08457 622 633

F 08457 778 878

enquiry@drc-gb.org

Textphone 08457 622 644

www.drc-gb.org

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T 020 7973 3000

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General enquiries

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F 01793 414 926

www.english-heritage.org.uk

Heritage Lottery Fund

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T 020 7591 6000

enquire@hlf.org.uk

www.hlf.org.uk

HM Treasury

T 020 7270 3000

www.hm-treasury.gov.uk

The Housing Forum

T 020 7691 0220

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KPIzone

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The Local Government Task Force

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Office of the Deputy Prime Minister (ODPM)

Enquiry service
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Office of Government Commerce (OGC)

Successful Delivery Directorate
Trevelyan House
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London SW1P 2BY
Service Desk T 0845 000 4999
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www.ogc.gov.uk

New Opportunities Fund

1 Plough Place
London EC4A 1DE
T 020 7211 1800
general.enquiries@nof.org.uk
www.nof.org.uk

Rethinking Construction

The Movement for Innovation:
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The Housing Forum:
T 020 7691 0220
The Local Government Taskforce:
T 020 7837 8286
The Central Government Taskforce:
T 020 7271 2653
(to become grouped under
Constructing Excellence)
www.rethinkingconstruction.org.uk

Royal Institute of British Architects (RIBA)

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Client Services
T 020 7307 3700
F 020 7436 9112
info@inst.riba.org
Client Services cs@inst.riba.org
www.riba.org
www.architecture.com

Royal Institution of Chartered Surveyors (RICS)

12 Great George Street
Parliament Square
London SW1P 3AD
T 020 7222 7000
General Enquiries
T 0870 333 1600
contactrics@rics.org.uk
www.rics.org.uk

Royal Town Planning Institute (RTPI)

41 Botolph Lane
London EC3R 8DL
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online@rtpi.org.uk
www.rtpi.org.uk

Sport England

Regional offices for East, East Midlands, London, North East, North West, South East, South West, West Midlands and Yorkshire can be contacted through the Sport England website www.sportengland.org

Strategic Forum for Construction

Currently hosted by CIC (see above)

Sustainable Development Unit

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sd.commission@defra.gsi.gov.uk
sdudiv@defra.gsi.gov.uk
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Urban Design Group

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F 020 7250 0872
www.udg.org.uk

Usable Buildings

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www.usablebuildings.co.uk

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www.ClientSuccess.org/ccc.asp
www.ClientSuccess.com

Construction Best Practice *Key Performance Indicators Pack* – (set consists of a handbook, methods of measurement and other guidance), cbpp 2003

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Strategic Forum for Construction, *Rethinking Construction – Accelerating Change*, SFC, London, 2002

Voluntary Arts Network (VAN) *Arts Facilities: Preliminary Guidance*, VAN, Cardiff, 1994

6.4 Arts, culture and community

These building types are created to entertain an audience for a particular artistic or cultural activity and help educate users. They include theatres, art galleries, studios and concert halls and facilities for rehearsals and production. Many have educational facilities attached. →

Elements of quality

- 1 Welcoming, accessible building which encourages both existing and new users to cross the threshold and engage with activities in it.
- 2 Clearly identifiable entrance.
- 3 Easily navigable building organisation – the ability to find one's way around the building with minimal reliance on signs.
- 4 Consideration of cross-flows in entrance/ticketing area, avoiding queues blocking circulation routes.
- 5 Positive contribution to the public realm, breaking down the scale and mass of any 'black box' elements and using social spaces such as café/bar or foyers to interface with the public realm.
- 6 Meeting comfort expectations of the particular audience base, which differ for theatre, cinema and other leisure uses.
- 7 Design that contributes to vitality and viability of town centres and the night-time economy.
- 8 Providing strong daytime and night-time presence.
- 9 Good functional fit with the specific technical requirements of the particular leisure/arts use(s).
- 10 An attractive destination.

←
Section 6.5

Contacts

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www.artscouncil.org.uk
www.artscapital.org.uk

Association of British Theatre Technicians

47 Bermondsey Street
London SE1 3XT
T 020 7403 3778
www.abtt.org.uk

The Clore Duffield Foundation

Creative Spaces Research project
www.art-works.org.uk

Resource: The Council for Museums,

Archives and Libraries
16 Queen Anne's Gate
London SW1H 9AA
T 020 7273 1444
info@resource.gov.uk
www.resource.gov.uk

Voluntary Arts Network

T 02920 395395
F 02920 397397
info@voluntaryarts.org
www.voluntaryarts.org

References

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places of assembly*, 1986

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audience*, 1993

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Building Design Considerations*, 3rd
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complete guide to developing and
designing spaces and services for
temporary exhibitions*, funded by the Lottery
Department of the Arts Councils of England,
Northern Ireland and the Scottish Arts
Council, 1999

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Halls*, Guidance note 28, 2001

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Builders*, 1994

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of Library Buildings*, 3rd edition, 1989

Voluntary Arts Network, VAN Guide:
Converting Buildings for Arts Us, 1996

6.5 Education

Educational buildings include day-care facilities, nurseries, primary and secondary schools, tertiary colleges and universities. Key elements for schools are listed below, although they vary for larger institutions.

Elements of quality

- 1 Good clear organisation, an easily legible plan and full accessibility, eg level thresholds.
- 2 Spaces that are well-proportioned, efficient, suitable for their purpose and meet curriculum needs.
- 3 Circulation able to absorb frequent very large flows, with good natural light and interest and variety along the routes.
- 4 Good environmental conditions including good acoustics and appropriate levels of natural light and ventilation, with ability to control these locally.
- 5 Attractiveness in design inside and out, to inspire pupils, staff and parents.
- 6 Good use of the site and public presence as a civic building where possible to promote local pride.
- 7 Attractive well-planned external spaces at least 10m wide, with a good relationship to internal spaces, offering appropriate security and a variety of different settings.
- 8 A layout that encourages broad community access and use out of hours where appropriate.
- 9 Robust materials that are attractive, will weather and wear well, stand up to heavy use from young people and are environmentally friendly.
- 10 Flexible design that will facilitate changes in policy and technology and allows expansion or contraction in the future where appropriate.

Contacts

4ps

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enquiries@4ps.co.uk
www.4ps.co.uk

Department for Education and Skills (DfES)

Sanctuary Buildings
Great Smith Street
London SW1P 3BT
T 0870 0012345
F 020 7925 6000
info@dfes.gsi.gov.uk
www.dfes.gov.uk
www.teachernet.gov.uk/schoolbuildings

Learning Through Landscapes

3rd Floor, Southside Offices
The Law Courts
Winchester
SO23 9DL
T 01962 846 258
schoolgrounds-uk@ltl.org.uk
www.ltl.org.uk

OECD Programme on Educational Building

www.oecd.org

School Works

2nd Floor The Tower Building
11 York Road
London SE1 7NX
T 020 7981 0361
F 020 7981 0360
mail@school-works.org
www.school-works.org

References

4ps, *Schools PFI Procurement Pack*, 2003 (only on CD)

CABE, *Client Guide: Achieving well designed schools through PFI*, London, 2002

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6.6 Health

Health buildings are varied, reflecting the diversity of services that the health sector provides to the community; they include large specialist teaching hospitals, diagnostic and treatment centres, primary care centres, GP surgeries and residential care facilities for the elderly or disabled. Under current government policy this diversity is likely to increase as the health service is transformed, for example by providing innovative ways of combining health and social services to deliver a more patient-focused and effective service. Despite this diversity there are some basic determinants of good design within this sector that apply across the board.

Elements of quality

- 1 Good urban design, allowing the building to contribute positively to the urban environment and providing a clear, easy approach that is integrated with public transport.
- 2 The entrance to the building should be convivial, uncluttered, calm and well-scaled.
- 3 High-quality landscape design, both outside the building and in internal courtyards, to provide places of respite for patients, staff and visitors and resolve often conflicting external demands such as car parking, pedestrian movement, emergency access, etc.
- 4 A coherent, easily navigable layout with circulation and waiting areas that are places in their own right.
- 5 Clear, coherent and succinct signage and graphics, co-ordinated with a way-finding strategy that springs from a coherent layout and therefore does not depend on excessive signage.

- 6 Bright, spacious interiors with direct and ambient daylight so as to ensure that staff, patients and visitors do not spend any length of time in an environment that depends on artificial lighting.
- 7 Adequate and effectively planned storage.
- 8 Thoughtfully designed consulting rooms, treatment/diagnostic rooms and ward interiors that allow for patient/staff personalisation and privacy.
- 9 Integration of architecture, landscape design and art bringing to bear the therapeutic power of a well-considered internal and external environment.
- 10 Versatility in daily use, adaptability to future changes.

Contacts

Architects for Health

www.architectsforhealth.com

Centre for Healthcare Architecture and Design (CHAD), NHS Estates

www.nhsestates.gov.uk

Future Healthcare Network

www.nhsconfed.org.uk

Medical Architecture Research Unit (MARU)

www.sbu.ac.uk/maru

The NHS Confederation

www.nhsconfed.org

NHS Estates design portfolio

www.nhsestates.gov.uk

The NHS Modernisation Agency

www.modern.nhs.uk

National Network for the Arts in Health

www.nnah.org.uk

The Nuffield Trust

www.nuffieldtrust.org.uk

Royal National Institute for the Blind (RNIB)

www.rnib.org.uk

References

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www.nhsestates.gov.uk (go to the Centre for Healthcare Architecture & Design link)

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NHS Estates, *Better Health Buildings*

NHS Estates, Health Building Notes (HBN), Health Technical Memorandum (HTM) and the technical guidance documents are available from NHS Estates
www.nhsestates.gov.uk

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NHS Estates, Improving the Patient Experience series, *The Art of Good Health – A Practical Handbook*, The Stationary Office, London, 2002

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6.7 Housing

Housing comes in many types, from low, medium or high-rise flats, to terraced or detached houses. The location and scale of a development will have a large influence on the final design but the elements of quality listed below should be aspired to on every occasion.

Elements of quality

- 1 Good space standards, generous internal and external storage provision
- 2 Accessibility for all users – residents, visitors, service and emergency staff, with safe access and egress – in entrance, parking and circulation areas.
- 3 Safe and attractive shared landscape and communal spaces designed to facilitate a sense of community.
- 4 Flexibility for changing lifestyles, family structures and different cultures.
- 5 Design to take advantage of local environmental conditions for views, orientation, energy saving.
- 6 Simple, effective services and systems (with local controls) for fresh air, lighting, heating, water supply and drainage, cabling for power, telephone.
- 7 Materials and finishes selected for long life and easy maintenance or replacement over time.
- 8 Efficient, hygienic refuse collection and removal.
- 9 Car-parking should be appropriate for the location of the development and situated so that it does not dominate the pedestrian areas and communal open space.
- 10 Liveable outdoor or semi-outdoor spaces – balconies, conservatories, patios, gardens.

Contacts

Building For Life

www.buildingforlife.org
www.architectsearch.co.uk

House Builders Federation

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Housing Corporation

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The Glass House

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The Housing Forum

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National House Builders Council

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References

Borer Pat & Harris Cindy, *The whole house book: ecological building design and materials*, Machynlleth: Centre for Alternative Technology, 1998

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6.8 Retail

Retail developments range from small precincts serving only the basic needs of the immediate local population, to high streets and large-scale malls, shopping centres and retail warehouse estates. A small shop and catering outlet may be located in other buildings, for example in museums or galleries. The elements below refer mainly to large shopping malls.

Elements of quality

- 1 Balancing the requirements of the different users – developer, retail tenants and the public.
- 2 Understanding the local catchment area to determine the appropriate demand, quality, 'look and feel'.
- 3 Establishing a layout with good pedestrian flows allowing movement from 'generators' to 'destinations' with different circuits and good connectivity to and from surroundings.
- 4 If multi-level, ensuring each level has equal pedestrian movement and easy, user-friendly vertical movement.
- 5 Achieving an identity and clear hierarchy to the public spaces – creating a 'sense of place'.
- 6 A mixture of complementary uses such as catering, leisure and public services, (eg post office or library) and mixed uses such as residential or offices, to maintain activity throughout the day.
- 7 Making sensible use of natural daylight and ventilation; places to shelter from the elements.

- 8 Providing safe and secure public environments both day and night.
- 9 Building a level of flexibility to allow tenant requirements to be incorporated during the construction stages and altered several times in the building's life.
- 10 Ease of access for all modes of transport with sufficient good quality car parking and integration with public transport.

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6.9 Sports

Sport developments include those that have only external spaces such as playing fields, those with small club houses and pavilions, through to large multi sports facilities that include swimming pools, ice rinks and provision for athletes.

Elements of quality

- 1 The facility can be approached by all means of transport.
- 2 Clearly identifiable entrances that appear welcoming.
- 3 Easily navigable building organisation so that both existing and new users can orientate themselves easily.
- 4 Circulation around the facility is generous, clear and uncomplicated.
- 5 The building makes a positive contribution to the public realm and uses the social spaces, such as foyers and cafes, as part of that strategy.
- 6 The architecture is designed to address the scale of any 'black box' elements.
- 7 All parts of the facility should be fully accessible with particular care taken over external areas.
- 8 Ease of cleaning and maintenance provided by robust, durable fixtures and finishes.
- 9 Ample storage for sporting equipment and also equipment required for maintenance and emergency situations.
- 10 Careful control of daylight in internal spaces.

Contacts

Department of Culture Media and Sport (DCMS)

2-4 Cockspur St
London SW1Y 5DH
T 020 7211 6000
enquiries@culture.gov.uk
www.culture.gov.uk

English Federation of Disability Sport

Manchester Metropolitan University
Alsager Campus, Hassall Road
Stoke on Trent ST7 2HL
T 0161 247 5294
F 0161 247 6895
federation@efds.co.uk

Institute of Leisure and Amenity Management

ILAM House
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Reading
Berks RG8 9NE
T 01491 874 800
info@ilam.co.uk
www.ilam.co.uk

The Institute of Sport and Recreation Management

Sir John Beckwith Centre for Sport
Loughborough University
Loughborough
Leicestershire LE11 3TU
T 01509 226474
info@isrm.co.uk
www.isrm.co.uk

The Landscape Institute

6-8 Barnard Mews
London SW11 1QU
T 020 7350 5200
mail@l-i.org.uk
www.l-i.org.uk

Sport England

Regional offices for East, East Midlands, London, North East, North West, South East, South West, West Midlands and Yorkshire can be contacted through the Sport England website
www.sportengland.org

Sports Gateway

www.sportengland.org/gateway

The Sports and Play Construction Association

T 020 7641 6316
info@sapca.org.uk
www.sapca.org.uk

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Department of National Heritage,
Guide for safety at sports grounds,
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Sport England Technical Guidance Notes

Technical Unit for Sport, *Handbook of sports and recreational building design*, Vol 1: Outdoor sports, 2nd edition, 1993
Vol 2: Indoor sports, 2nd edition, 1995
Vol 3: Swimming pools and ice rinks, 2nd edition, 1996
Vol 4: Sports data, 1981

6.10 Work

Work buildings are as varied as jobs. The main types are offices, factories, industrial and warehouse facilities. Many work areas are included within other buildings. For example, there are significant areas for office staff within the main building of courts, hospitals, schools, art galleries and theatres. The quality elements below apply to all work areas.

Elements of quality

- 1 Efficient, clear space for maximum flexibility of layout.
- 2 Place making – defined places for entry, reception, work, breaks, drinks and catering, services.
- 3 Accessible to all, and, where relevant, welcoming to the public and customers.
- 4 A workplace, location and building representing organisational values.
- 5 Maximum access to views and outlook.
- 6 Good environmental qualities: lighting, heat, air with individual control of the environment where possible.
- 7 Design for comfort and ergonomics, particularly in furniture and lighting.
- 8 Use of colour, texture, light and architectural features to enliven the work environment.
- 9 Design for security and safety.
- 10 Design for energy efficiency and future-proofing.

Contacts

British Council for Offices

38 Lombard Street
London EC3V 9BS
T 020 7283 4588
F 020 7626 2223
mail@bco.org.uk
www.bco.org.uk

The British Property Federation (bpf)

7th Floor
1 Warwick Row
London SW1E 5ER
T 020 7828 0111
F 020 7834 3442
E info@bpf.org.uk

Department for Trade and Industry

Work-life balance campaign
www.dti.gov.uk/work-lifebalance

The Work Foundation

Peter Runge House
3 Carlton Terrace
London SW1Y 5DG
T 0870 165 6700
F 0870 165 6701
E contactcentre@theworkfoundation.com

References

British Council for Offices *Best practice in the specification for offices* BCO, London, 2000

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6.11 Open Spaces

The setting and surroundings to buildings provide an opportunity to integrate building projects with adjacent areas, enhance the quality of the external environment and contribute to the variety of spaces accessible to the public. These can create new or complement existing parks, squares, plazas, streets, community gardens and covered atria. Designs for buildings will almost always need to engage with their surroundings. The open spaces considered here are those that are directly associated with buildings. This includes spaces within buildings – internal courts and atria, adjacent to buildings – forecourts or parking areas, and created by surrounding buildings – plazas and squares. The key elements below refer to these sorts of open spaces.

Elements of quality

Considering the following will ensure that the open space is of the best possible quality:

- 1 Consult with users and consider future needs to create beauty and delight at an appropriate scale
- 2 Encourage a sense of local ownership to deter vandalism and neglect.
- 3 Survey and incorporate existing pedestrian routes and 'desire lines'.
- 4 Consider at the outset existing and proposed underground servicing and utilities.
- 5 Use changes in level imaginatively and ensure that the final space is fully and safely accessible to all users.
- 6 Consider the needs of a variety of users and where appropriate incorporate areas for children to play.
- 7 Select construction and surface materials to provide visual and tactile variety and make sure surfaces are suitable for wheel and push chairs where appropriate.
- 8 Coordinate lighting, outdoor furniture and signage elements and ensure that their selection is appropriate to the surrounding context and easily maintained.
- 9 Design for sustainability and for the long term by considering levels of use, weathering and maintenance, incorporating suitably robust materials and an appropriate balance of planted areas.
- 10 Consider including landscape architects, ecologists and artists in the design team.

Contacts

CABE Space

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11 York Road
London SE1 7NX
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F 0207 960 2444
www.cabespace.org.uk

Children's Play Council National Children's Bureau

8 Wakley Street
London EC1V 7QE
T 0207 843 6016
cpc@ncb.org.uk
www.ncb.org.uk/cpc

The Civic Trust

17 Carlton House Terrace
London WC1X 9HH
T 020 7930 0914
pride@civictrust.org.uk
www.civictrust.org.uk

English Heritage

23 Saville Row
London W1X 1AB
T 020 7973 3000
customers@english-heritage.org.uk
www.english-heritage.org.uk

English Nature

Northminster House
Peterborough PE1 1UA
T 01733 455000
enquiries@english-nature.org.uk
www.english-nature.org.uk

Environment Agency

Rio House
Waterside Drive
Aztec West
Almondsbury
Bristol BS12 4UD
T 01454 624400
www.environment-agency.gov.uk

GreenSpace

(Formally Urban Parks Forum)
Caversham Court
Church Road
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Institute of Leisure and Amenity Management

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Learning Through Landscapes

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schoolgrounds-uk@ltl.org.uk
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Open Spaces Society

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T 01491 573535

The Sensory Trust

Watering Lane Nursery
Pentewan, St. Austell
Cornwall PL26 6BE
T 01726 222 900
enquiries@sensorytrust.org.uk
www.sensorytrust.org.uk

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7 Glossary & Lists

7.1 Glossary

Many terms are specific to the construction industry or used differently from other sectors. Some have been explained in the body of this manual and are not repeated here. Others have not been referred to but are included here in case clients meet them in the course of a project. Definitions are not set in stone and in some cases slightly different terms may be used or slightly different meanings given to them. This glossary is drawn from several sources, which are included as references.

A

A/c

Air conditioning

Access audit

A review of how well the building will meet the needs of people with any type of disability – hearing, sight or mental impairment, as well as wheelchair users. The audit is often done by considering a movement sequence: the journey to, entrance into and movement round the building.

Access consultant

Specialist in design that enables access for all, including those with a physical or mental impairments.

Accessibility

Ease of reaching, entering and using a building and all its services and facilities.

Architect (See also Designer)

Architects design buildings and must be registered with the Architects Registration Board (ARB) in the UK in order to use this term. They are expected to understand the importance of user requirements and may have specialist skills, eg historic buildings, refurbishment or particular building types. In traditional contracting the architect often leads the design team, although bigger projects also use project managers who work directly for the client.

Architectural design competitions

The selection of the design team can involve a formal design competition, in which several architects prepare designs in response to the client's brief. This form of selection reduces early contact between architect and client and may slightly add to the early costs and extend the time frame. →

Area measures

Several area measurements are used in building. The Royal Institution of Chartered Surveyors (RICS) has produced a set of accepted definitions, of which the most common are:



Work sheet 5

- Gross External Area (GEA) – the area enclosed by the outer surface of the external walls, used for development control and planning permissions.
- Gross Internal Area (GIA) – the area enclosed by the inner surface of exterior walls
- Net Internal Area (NIA) – the GIA less internal structure, vertical circulation (stairs and lifts), plant and WCs
- Net Useable Area (NUA) – the area that can actively be used, equivalent to the NIA less horizontal circulation routes.

Articles of agreement

The details of a contract and the agreement it describes.

Artists

Painters, sculptors and artists working in other creative mediums such as glass and tapestry. Appointing an artist to collaborate with the design team can benefit both the building design and the art works produced. The Arts Council promotes a 'percent for art' policy, which encourages the client to invest around 1% of the total budget on art. Organisations able to provide advice in this field are listed in Section 6.4 – Arts and Culture.

Axometric projection

A three-dimensional drawing to combine the plan and elevations. The accurate plan is drawn at a convenient angle and verticals from suitable points create the elevations. All horizontal and vertical dimensions are to scale, but diagonals and curves on a vertical plane are distorted. The result is similar to a perspective (see also Isometric projection).

B

Benchmark

A standard of performance set by an organisation or groups of common interest, against which similar projects can be measured.

Best value (see also Value for money – the central government terminology)

The value that is represented by considering quality and lifetime costs, rather than construction costs alone. Central and local government clients are charged with obtaining best value for their construction projects, as for all other aspects of government, rather than seeking lowest price.

Bill of quantities

A list of the costs – usually a contract document – which is calculated by a quantity surveyor (see below) from the architect's drawings and specifications using a 'standard method of measurement'. If planned works are changed they are re-measured to calculate the change in cost.

BREEAM

Building Research Establishment Environmental Assessment Method.

Brief

Description of what a client wants to include in the project and how the finished building is to perform. Different terms are used in different guidance documents. The brief develops in complexity from a simple statement of need and/or a vision, through an outline or strategic brief, to a detailed, quantified brief for design. See Detailed design brief, Outline brief, Strategic brief, Statement of need/requirements, Project brief, Vision.

Brief writer

Member of client organisation and/or professional consultant, responsible for preparing the building brief.

Buildability

The ease and efficiency of construction.

Building envelope

The external walls, windows and roof that form the building 'skin' to keep out the weather.

Building inspector

The person responsible for inspecting building projects on site to ensure that all building regulations are being met. Normally an officer in the local authority.

Building regulations

Statutory requirements to which buildings must conform, aimed primarily at good construction, safety and public protection.

Building surveyor

A surveyor trained in building construction, law and sometimes costing. Often leads the design team for alterations to an existing building.

Business case/ business plan

A business case sets out the underlying purpose of the project within the mission, aims and objectives of the organisation. It should be based on detailed current and projected financial information.

Business case team

This team consists of people with understanding of the business objectives of the client organisation and can include both departmental representatives and/or external client advisers.

C**CABE - Commission for Architecture and the Built Environment**

Funded by central government departments (Department of Culture Media and Sports and Department of The Office of the Deputy Prime Minister, Local Government and the Regions) to promote quality in the built environment in England. **CABE Space** has recently been charged with a special remit to promote quality in open space design.

Capital grant

A grant towards purchase, construction or refurbishment of buildings (see also Revenue cost).

Capital project

A capital project requires expenditure outside the normal budget for running the organisation – the revenue budget. Special funds usually need to be defined, agreed and obtained.

CDM regulations

See Construction Design and Management.

Certificate – interim and final certificates

Formal documentation issued by the contract administrator to assess progress and authorise payment at set intervals during the construction phase of the project. The final certificate confirms that the contractor appears to have completed the contract satisfactorily and sets out the final contract sum.

Champion

See design champion and user champion.

Circulation

Passages, corridors, stairs and lobbies allowing movement through a building. The minimum width and location of circulation routes are regulated for fire safety according to the number of people using the building, the floor and the number of exits available.

Clerk of works

An on-site representative of the client, architect or contract administrator responsible for verifying and ensuring that what is constructed meets the level of workmanship and materials specified by the design team.

Client

The person or group that 'owns' the building. The client initiates the project, employs the design and construction teams and finds the resources to make it a reality. The client is sometimes referred to as the 'employer', 'champion' or 'manager'. The executive client is the name sometimes given to the most senior person in the client organisation. The lead client is the name of the senior person on the client project team.

Client adviser

An individual with knowledge of construction and of the business needs and objectives of the client and users. Employed early in the project to give impartial advice on the best way to proceed ←. Should be 'independent' and not receive a commission for additional work undertaken on their recommendation within the project.

Client representative

An agent employed by the client to act on their behalf with limited powers – sometimes also acts as project manager.

Clients Charter

The Confederation of Construction Clients (now the Construction Clients Group) launched a Clients Charter in 2000. The Charter, which covers a wide range of principles of being a good client, must be adopted by housing associations seeking funding from the Housing Corporation. However, it has not been adopted by many other sectors and faces an uncertain future. The Strategic Forum for Construction, charged with achieving targets for the principles set out in the charter, acknowledges this can be achieved in other ways than registering for the charter itself.

Commissioning period

After hand-over to the client, the period during which the building systems are first used together and small problems are resolved.

Competitive interview

A process to select a member of the team, particularly the designer, on the basis of performance at interview. Selection depends on track record, credentials and proposed approach. ←←

Construction costs

Costs of the construction only, excluding items such as land acquisition and legal costs, financing costs, professional fees and VAT. ←←

→→

Work sheet 1

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Section 2.2.5

→→

Section 2.3.3 Fig 12

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.

Construction Industry Council (CIC)

A body whose membership consists of organisations representing the many professional, research and business organisations, as well as individuals, within the construction industry.

Construction management

A form of procurement where the client uses separate contracts to employ:

- a construction manager to manage all processes on site
- consultants
- specialist contractors/builders.

Constructor (see also Contractor)

A term applied to the team (or person) that constructs the project, also often referred to as 'contractor'. The distinction is relevant for procurement routes that create contracts for a construction project with someone other than the 'constructor' (eg PFI).

Contingency

Provision of time or money for unforeseen problems arising during the construction project. The money set aside should relate to the degree of risk, and be part of a formal risk management approach. Risk and uncertainty can be reduced as the project proceeds.

Contract

A legal agreement defining relationships between a client and a provider of services or products. →

Standard forms of contract are provided by several organisations, eg:

ACA: Association of Consultant Architects (eg PPC2000)

ICE: Institute of Civil Engineers (eg the NEC suite)

JCT: Joint Contracts Tribunal (eg JCT98 and the Major Project Form)

Contract suites include:

ECC: Engineering and Construction Contract

PACE: Property Advisors to the Civil Estate (eg GC/Wks1 - GC Works; Government Contract Works)

NEC: New Engineering Contract;

PPC 2000: Project Partnering Contract 2000 (ACA)

Contract administrator

Also called the 'supervising officer', the person – usually an architect, project manager, surveyor or engineer – who manages the contract for the client.

The contract administrator is named in the client's contract with the builder and is responsible for instructing the builder on the client's behalf.



Section 2.7

Contractor (see also **Constructor**)

The industry term for a builder.

The contractor's role and title depends on the procurement route used:

- Main contractor – the organisation employed by client to construct the project.
- Management contractor – the contractor who employs and manages the construction team, including the specialist contractors.
- Subcontractors – employed by the main contractors to carry out particular aspects of the construction, eg electrician.
- Specialist subcontractors – contractors in specialised fields likely to do detailed design of the work for which they are responsible, eg foundations and air conditioning ductwork.

Cost consultant

A consultant, usually employed by the client, who estimates, monitors and sometimes controls project costs.

Usually a professional quantity surveyor.

Critical path

The shortest sequence of activities needed to complete the project. A delay in any activity on the critical path will delay the overall time table, while delay in other activities has less impact. Typical activities on the critical path prior to construction include raising funds, receiving planning approval and producing information.

D**DDA - Disability Discrimination Act 1995**

Legislation that progressively requires employers and organisations to meet the needs of disabled staff and users by ensuring full access to their buildings. The final phase will come into force in October 2004 when service providers will have to make their premises accessible to disabled customers if it is 'reasonable' to do so.

Design and Build (D&B)

Method of construction where the constructor or building contractor is partly or entirely responsible for design development and quality as well as for delivery of a building. Variants include:

- Design, Build, Own and Manage (**DBO&M**), which is frequently the scope of a project handled under PFI (see PFI).
- **Design, Build, Finance and Operate (DBFO)**

This gives private financial partners responsibility to design, build and manage and/or operate the completed facility for many years, usually 20-30, after which management and operation revert to the client.

Design and manage

A procurement method in which a single body, usually a building contractor, takes sole responsibility for design, management and delivery to the client. The contracts of all consultants and subcontractors are made with this intermediary, rather than with the client.

Design brief (sometimes called detailed brief or detailed design brief)

see detailed brief

Design champion

A person appointed to provide leadership, generate enthusiasm and commitment to design quality and safeguard design quality on behalf of the client. Ideally a senior manager or board member.

Designer (See also **Architect**)

May have one of many design roles – engineering, landscape, etc. The term is often used to describe the person who designs the building overall.

Design team

The team responsible for designing the building. Covers a range of professions including architects, landscape architects, engineers and property and cost specialists.

Defects liability period

A period, usually 12 months, during which the contractor must remedy faults that appear in a building as a result of construction processes (such as cracking of plaster as it dries out).

Detail brief

A document describing the 'problem' for which a design provides the 'answer', the demand that the advisers, designers and building contractors must supply. →→

Developer

An organisation investing in a construction project intending that the building will be used by another organisation. The process needs to give the developer a profit in exchange for the up-front funding and risk involved.

Development

In the construction environment the term 'development' has several meanings:

- the process of moving a project from feasibility to design
- the actual process of building
- the extent or type of building on a site, as expressed in 'over-development'.

In charitable and supported sectors, development often means fundraising.

District surveyor

Although this term is no longer current, it is still sometimes loosely used for the role of building inspector, particularly in London.

Domestic subcontractor

A subcontractor employed directly by the main building contractor. The contract administrator has the right to approve these in standard forms of contract.

E

ECC

The Engineering and Construction Contract (part of the NEC suite of contracts). In use since 1994 and applicable to all types of building contracts, it aims to streamline the building process by using techniques of partnering, especially for resolution of conflicts.



Sections 2.4 and 3.1

Economic impact

The effect a project has on the local economy. An increasingly important factor in achieving a successful project. Specialist input should be sought when a business case requires the prediction of economic impact and regeneration benefits.

Elevation

A drawing to an accurate scale of any one face of a building or room, viewed as if standing in front of it, with perspective eliminated.

Employer

The term used in standard building contracts to refer to the client.

Employers requirements

The client's brief – often an outline brief.

Enabling works

Building works required before the start of the main construction project, such as constructing a site entrance or demolishing an existing building.

Energy efficiency

The quest to reduce the amount of fuel required to heat, cool, light and run a building, compared to standard consumption.

Engineer

see Services engineer, Structural engineer.

Estate agents

Agents skilled in finding and gauging the value of sites and buildings in a wider marketplace. Can help locate suitable buildings or sites and give opinion on the value of the finished project. At completion can provide valuations for insurance purposes.

European Union (EU)

EU procedures must be followed for contracts over a certain size that receive more than 50% public funding ↔. The Union was known as the European Communities and until recently the Official Journal (see below) was known as OJEC – now OJ or OJEU

Executive client

The most senior individual or group of collective decision-makers in the client organisation, eg main board, chief executive or proprietor.

F**Facilitator**

A specialist may be used early in a project to help an organisation articulate its needs and define internal channels of communication. It is often useful to engage a facilitator before appointing a client adviser or construction professionals.

Facilities manager (FM)

The person or team responsible for managing the operation of the finished building. Although they may not be present during the planning stages, the manageability and maintainability of the final building still need to be considered.

Fast-track

Techniques to speed up the work and meet tight time requirements, frequently achieved by overlapping design and construction, or prefabricating large components off-site.

Feasibility study

A review carried out objectively and early in the process to check whether a set of proposals is likely to fulfil the organisation's objectives and whether the chosen site is suitable for the intended building. It is not a fundraising document.

Feedback

Information about past experience and how other projects have succeeded or failed. →→

Final account

The adjusted contract sum, calculated once the project has been completed, which takes account of all changes to the original tender documents. For Final certificate see Certificate – interim/final.

Fit out

The last part of a construction project when the fittings and furniture – carpets, seating, lighting, etc are installed. The cost of supply and installation should be included and ring-fenced in the budget. (see Interior designer)

Framework agreement

A technique used in partnering in which a contract is made specifically for a project but is governed by the terms of a general agreement between the parties. There is no need for competitive tendering at call-off stage if the terms of the contract have not changed.

Funders

The bodies that provide finance for capital expenditure. Many publicly funded projects have more than one funder or funding body. Funders are likely to impose conditions on a project and are important stakeholders.

G

Gross External Area (GEA)

See Area measures

Gross Internal Area (GIA)

See Area measures

H

Handover

The moment at which responsibility for the completed building, including insurance and management, is passed from the contractor to the client. A full check is needed to ensure that everything promised under the contract has been fulfilled.

HVAC

This is shorthand for heating, ventilating, and air conditioning. Air conditioning controls temperature, cleanliness and humidity of the air. Mechanical 'air handling' or natural ventilation may be used.

I

Inclusive design

Design that caters fully for all needs and as a minimum meets the requirements of the Disability Discrimination Act (DDA) 1995.

Integrated process

Collaborative techniques to unite the client, designers and builders with the aim of increasing efficiency and harmonising processes. Joint decision between separate groups about the integration of IT systems or software is an example. In construction projects this refers to a variety of design and build approaches where design benefits from early input by the contractor.



Section 4.6

Integrated team, Integrated supply team (IST)

The designer, contractor and client work together from the start to achieve the agreed objectives of the project.

Interior designer

A specialist trained in design for fit out, but not in building construction, responsible for the functional and aesthetic design of internal spaces and the choice of materials and furnishings. May be part of the architect's team or appointed separately.

Investment decision-maker (IDM)

Central government term for the person/role responsible for taking investment decisions for the use of resources. The IDM must decide on the basis of business benefits and whole life value-for-money whether a project will go ahead and then remain visibly committed to its delivery.

Invitation to tender

See Tender process.

Isometric

A three-dimensional geometrical drawing in which the plan is distorted but verticals remain vertical and to scale. Gives a more realistic 'view' than an axonometric but with more distortion of relative sizes.

K

Key performance indicators (KPI)

Benchmarks based on information from many projects assessing success. Those available from CIC cover many process issues, including client and user satisfaction.

L

Landscape architect

Specialist in landscape design, construction and horticulture. May be needed for significant external spaces – whether planted or not.

Latent defects

These are building defects that appear after completion. They are covered by Limitation Acts, which state a time limit after which claims cannot be brought for errors in the design and construction. If, during this period, the client can prove that the design or construction team is responsible for any defect, they will normally be liable for losses suffered by the client as a result.

Lawyer

Needs specialist experience in the field of building projects and building contracts.

Legibility

The ease of understanding a building and knowing how to find one's way around and use it.

Life time costs, Life cycle costs

see Whole life costs.

Liquidated and ascertained damages (Lads)

A realistic estimate of the losses that the client believes will ensue as a result of delay in completing the project. This estimate is included in the contract as a sum of money per week for which the contractor will be liable if the project runs over time. Damages cannot be claimed from the contractor for delays beyond their control.

Long life loose fit

This indicates that a building may meet evolving needs more easily if the design is not over specific.

Lump-sum contract

A contract for a fixed sum including all costs associated with the construction. Should only be calculated on a finalised and fully-detailed design.

M

Manageability

The ease of managing a building over its lifetime. Manageability is directly tied to design that considers the everyday operation of the building.

Management contracting

A procurement method where a contractor is chosen at an early stage and acts in a management capacity before construction starts. Often this contractor only manages the building works carried out by other subcontractors. Also known as 'fast-track' procurement because the contractor can start site works as soon as there is sufficient information, leaving the design team to prepare the rest of the design information.

M&E

Mechanical and electrical services include power and data supply, lighting, air conditioning, humidity control, plumbing and drainage. M&E are designed and specified by services engineers.

N

NEC

A suite of contracts published by the ICE. See ECC.

Net Internal Area (NIA)

See Area measures.

Net present value (NPV)

The current value of a project across its lifetime, at agreed discount rates. See Area measures.

Net Usable Area (NUA)

See Area measures.

Nominated subcontractor

A specialist subcontractor chosen by the client and nominated using special provisions in the contract, who must be used by the contractor.

Novation

Transfer of contractual rights and obligations from one contracting party to another. A design team and their work are often 'novated' by the client to a design and build organisation although this is often not a true novation. The process aims to achieve continuity in design, but often presents many legal and practical difficulties and should not be undertaken without specialist legal advice.

O

Office of Government Commerce (OGC)

The Office of Government Commerce (OGC) is a central government department, part of HM Treasury. It works with government to improve procurement and project/programme management. OGC also works with suppliers to make the government marketplace more efficient and attractive to business. Construction procurement policy and best practice are the responsibility of the OGC's Successful Delivery Directorate.

The Official Journal of the European Union (OJ)

Now referred to as OJ – the Official Journal. Formerly known as OJEC. Daily journal advertising the service requirements of all public procurement, including construction projects. Publicly-funded projects over a certain size must advertise here both for professional teams and builders.

Option appraisal/analysis

Before agreeing the building project several alternatives should be appraised to ensure the right strategy is adopted. Typically between three and five options should be considered, including a 'do nothing' option. Analysis of the options may give different weightings to various qualities. It may be decided during this process that a building project is not the best way to achieve the agreed objectives.

Organisational capacity

A shorthand way of describing the ability of an organisation to plan and carry out a capital project. The main qualities needed

for building projects are strategic management, financial control and executive leadership.

Orientation

The planning of a building in relation to its surroundings, usually described in terms of its compass setting, eg south-facing garden, north-south orientation.

Outline brief

An initial description of the client goals and requirements, which forms the basis for feasibility studies and decisions about the project. Sometimes described as a strategic brief or a statement of needs or requirements.

Outline planning permission/consent

Outline permission can be sought for a building before detailed designs have been proposed, based on an outline scheme. Normally full planning permission is sought after discussion to determine the likely acceptability of the project. See Planning permission below.

Output specification

The form in which briefs may be stated. Essential for PFI projects, it requests the provision of the service that the building will provide, rather than describing the accommodation.

Out-turn costs

The total or projected cost of a project including land acquisition, construction and fitting out costs, professional fees, contingencies, disruption and financing costs, VAT and inflation. The total sum the budget must cover.

P

Partnering

An approach which prioritises co-operation between the various contractors, consultants and employers for mutual benefit. It is not a procurement route; rather it is a flexible definition of approach. Framework agreements (see above) are often the outcome of a partnering approach.

Percent for art

See Artists

Plan

The layout of a building taking a horizontal slice and showing everything through which the cut passes.

Planning permission

Permission that must be obtained from the local authority before construction starts on most projects. It controls the proposed use, how much of the site is covered, the size of the building, site access, external landscape and parking and conformity with existing local plans. If permission is not granted, an appeal may be heard by a public enquiry and determined by a planning inspector. The Secretary of State for the Environment makes the final decision.

Planning supervisor

Under the CDM (Construction Design and Management) regulations, the client is required to appoint a planning supervisor to check that health and safety are taken into account throughout the project and to co-ordinate the production of the health and safety file. Relevant information is provided to the contractor and the health and safety file is handed to the client at completion.

Post-project evaluation/Post occupancy evaluation (POE)

End of project assessment of both the process and the completed building. A post-project evaluation of the process can be done soon after hand-over, but post occupancy evaluation should be carried out later when it is possible to assess how well the building fulfils the clients aims and objectives. The purpose of the evaluation is to identify necessary remedial actions and to document how the process could be improved in the future. →

Practical completion

A certificate is generally issued by the architect, certifying satisfactory completion of the construction. It normally allows the contractor to invoice the client for all but a small portion of the contract sum. The outstanding portion is called the Retention.

Preliminaries (Prelims)

Preliminary clauses in a cost document or tender that set out general conditions that may have cost implications. Clauses typically cover standards, sites access, hours of working, etc. The word also refers to the cost of the contractor maintaining a site presence, ie the cost of renting temporary buildings, insurance, etc.

Pre-qualification

This is sometimes called qualification. The process by which a contractor or design team is deemed competent to be placed on a short list for possible selection for a project. The conditions for suitability should include assessment of competence as indicated by track record, size, staff qualifications and financial record.



Section 4.6

Prime contractor

A design and build contractor with a supply chain of reliable suppliers of quality products. The key suppliers in the supply chain can be integrated into the design process. The prime contractor co-ordinates and manages all activities throughout the design and construction period.

Private Finance Initiative (PFI)

A procurement route in which a private sector supplier takes over the design, construction and management of a building for use by the public sector. The typical operating period is 20-30 years. Outputs that the service is intended to provide must be clearly defined. At the end of the operating period, ownership of the building reverts to the public sector.

Prior Indicative Notice (PIN)

The notification that must be sent to the Official Journal (see OJEU above) announcing that suppliers will be sought for publicly-funded projects or services above specific values. ←

Private Finance Initiative – see PFI

Procurement route

The method by which the consultancy, building contract and related services are tendered and purchased. Procurement routes range from traditional to PFI, with many variations in between. ←

Professional Indemnity Insurance (PI)

The insurance that some professionals must have to protect them against alleged negligent behaviour that causes losses to the client, often due to defects to the building, delays to the programme or injury.

Professional institutions

Most of the professions involved in construction have institutions to which they may belong. (See Section 6 Contacts & References) - The Construction Industry Council (www.cic.org.uk) can provide contact information for additional institutions.

Project brief

Statement of the requirements for the project.

Project cost management

This includes resource planning to develop a programmed requirement for people, equipment, materials and time. Cost estimating and cost control are needed to ensure that changes do not invalidate the cost plan.

Project delivery team

Designers and contractors and all other specialists working to design and deliver the building to meet the client's brief.

Project integration management

The process whereby alternative objectives or methods are considered and their benefits and problems are traded off against each other with a view to getting the optimum result, often as a result of an Option appraisal (see above).

Project manager

A specialist given day-to-day management of the building team, co-ordinating timetables and maintaining appropriate communication channels. The client's project manager safeguards the client's interest at all times, ensuring that the project is completed within budget, on time and to the right level of quality. The project delivery team will have its own project manager.

→

Work sheet 3

→

Section 2.6 and
Work sheet 1

Project sponsor

The individual charged with representing the client and carrying out client responsibilities. The project sponsor communicates with the client body and encourages dialogue between the client and other players to ensure that the client's needs are understood and met.

Project team, project delivery team

The entire team, including both design and construction, and any specialists who are working to design and deliver the project for the client.

Public Private Partnerships (PPP)

Procurement methods that involve working in partnership with private finance. They usually involve versions of Design and Build including Prime Contracting. Variations of specific ways PPP is used are being developed, for example in the primary care and health sectors. Prime contractor relationships are being used on Design Build Finance and Operate (DBFO) rolling programmes so that many smaller projects may be undertaken by a team led by the prime contractor, but not all are defined or let on day one.

Public sector comparator

A cost estimate based on the assumption that a project will be constructed in a conventional way, to use as a benchmark against which to assess the net present value of PFI bids, in order check that procurement through PFI is providing value for money.

Q

Quality based selection (QBS)

Selection of service and products on the basis of appropriate quality, not of lowest cost.

Quantity surveyor (QS)

A specialist in all aspects of the costs of construction, providing information on the likely cost of a project at every stage including cash flow. The QS can also advise on the form of contract, procurement routes, suitable contractors, inflationary allowances and the need to make contingencies in the cost model.

R

Retention

A percentage of the construction cost, usually between 2% and 5%, that is retained during construction and for a period following hand-over. This obliges the contractor to rectify small construction defects that appear as the building is used.

Revenue cost

Revenue cost covers the costs of using and running a building, including rent, rates, insurance, utilities, maintenance and staff costs. A grant is sometimes available to cover these costs.

Risk assessment/Risk management

Identification and analysis of, and response to, potential project risks. The process of addressing risks needs to be documented to demonstrate that reasonable risks have been considered and reduced or eliminated where possible.

Room data sheet

A list of requirements for a given room, including furniture, equipment, power and telecommunications cables, finishes and fittings.

S

Schedule of rates

Contractors commonly provide tender prices as a 'schedule of rates' where particular building tasks are costed at a standard rate per metre or square metre, eg laying floor tiles. The schedule is usually included as part of the contract and may also be used with the Bill of Quantities.

Scheme design study (or detailed proposal)

Additional technical information that may be required for funding applications for larger projects, including plans, specifications, sections and elevations and a cost estimate.

Section

The vertical layout of a building taking a vertical slice and showing everything through which the cut passes.

Section 106 agreements

Agreements whereby planning permission is granted subject to the developer/client fulfilling certain conditions, eg local road improvements.

Senior responsible owner (SRO)

A central government term for the senior manager in the business unit that requires the project who has status and authority to provide leadership – directly responsible to the Investment decision maker (see above).

Sensitivity analysis

A test of the effect that different assumptions have on the 'bottom line'. Often used as part of the Business case of the project (see above).

Services engineer

Sometimes called an environmental engineer. Specialists in the design of M&E (see above) systems, air handling, energy conservation, lighting, drainage, acoustics, fire, etc. Although many engineers focus on a single field, large engineering firms cover the range of services required by complex projects. For smaller, less complex projects, the architect's team may provide the services engineer.

Shell and core

Description of a building completed only to the stage where the outer shell and the core (boilers and other building equipment, and vertical circulation stairs and lifts) plus, in some cases, ceiling and floor finishes, basic lighting and services are provided. This allows the client to subdivide the space and finish it to specific requirements (eg for a tenant).

Signing off

A process of formally recording the client's approval of briefing statements or design proposals.

SIMAP

Système d'Information pour les Marchés Publics – common procurement vocabulary for preparing contract and award notices.

Snagging

The process of identifying and fixing defects prior to project completion. The responsibility for remedying these normally lies primarily with the contractor. The project timetable should always allow time for snagging before move-in. However, some items, such as air handling systems, can only be fully tested after running through all seasons of the year.

Special Purpose Vehicle (SPV)

A company created by the members of a PFI consortium, which serves to carry out a specific project and with which the client contracts.

Specialist subcontractor

An organisations employed to handle a specialised aspect of the building, such as ductwork or foundations, and which usually has a role in designing, supplying and fixing the elements in which it specialises.

Specification

The technical description used to set the standards of materials, workmanship and type of construction.

Stakeholder

People and groups who are affected by, or have a financial or practical interest in, the outcome of a project. →→

Statement of need (SON), Statement of requirements (SOR)

Another term for an outline brief. Often this is a formal statement that must be signed off by a board or senior member of the organisation before the project process can start.

Strategic brief

See Outline brief.

Structural engineer

Engineer specialising in the design of building structures. Decisions about the type of structure are integral to the design and should be taken with the architect. The engineer is responsible for ensuring that the structure has the appropriate strength and flexibility.

Suite of contracts

See contracts. →

Supply chain

This is made up of all the parties responsible for delivering a specific product or service. There may be a number of specialised supply chains and the members of each should be accustomed to working together as a fully linked chain.

Supply chain integration

Involvement of the product and service suppliers, sometimes including manufacturers, in the design process, using their expertise to improve the design as it develops.

Surveyor

A surveyor measures and maps out various aspects of land and buildings, for example in relation to dimensions, costs and construction.

Sustainable materials

Resources that will not be exhausted. For example, timber from renewable forests is sustainable, while that from slow-growing tropical hardwoods is not. Sustainability is a concept that good design is expected to incorporate, reducing waste, promoting whole life value and a healthy environment. →

←

Section 2.7

←←

Key 6 and Section 2.1

Key 8 and Section 2.4.3

←

T

Tenders Electronic Daily Database (TED)

The online version of the Official Journal of the European Union (OJEU), updated daily, where notices for tender requests can be accessed free of charge.

Tender process

This is the process of inviting organisations to submit a proposal, with costs, to carry out a piece of work. It covers the preliminary invitation to tender, formal invitation to tender and the actual form of tender.

Turnkey

A procurement method related to Design and Build where the client takes the minimum number of decisions and the contractor handles the design, construction and fit out, theoretically allowing the client to just 'turn the key' and move in.

U

User champion

Person representing a group of users, transmitting their needs to the design team and informing the group about project progress, including for fit out and move-in.

Users

All the people who will use the building, including the client organisation, tenants, customers, clients and visitors.

V

Value for Money (see also Best value)

The central government term expressing the goal to be achieved by balancing quality time and cost in a construction project.

Value management/Value engineering

A formalised approach to managing a project through its whole life that seeks best value for money. Multi-disciplinary workshops can be organised to determine whether better value solutions are possible within the constraints of the brief and the project.

Valuer

See Estate agents

Variation

A statement of the costs associated with changes to the contracted works.

Vision statement

A simple statement of main objectives, needed for early consensus to be able to start the feasibility and budget checks and as a constant reference point throughout the project. The vision develops alongside a 'statement of need' and design quality needs to be part of it.

W

Whole life costs

The full cost 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.

Whole life value

Value of an asset when its whole life costs are taken into account. Sustainability is an important aspect of whole life value.

Working drawings

The detailed drawings showing how the different parts of the building are joined together and used by construction teams on site or when preparing off site assembly of parts.

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8 Work Sheets

1 Procurement routes

This worksheet provides tabular information to help differentiate the four types of procurement route discussed in Section 2.6. The table describes the routes briefly and shows some of the reasons why a particular route may be appropriate for a project. The choice should be made with the help of professional advice, as making the right choice is critical to the success of any project. You will find specific information about PFI projects in Worksheet 4. Central government clients should also consult *Achieving Excellence N° 6 Procurement and contract strategies*, which provides advice and recommendations on integrated procurement routes, with practical information about where to find help implementing them.

There are four broad ways in which arrangements are made between clients, designers and building contractors, although these are constantly evolving. The four categories each have several variants but in simple terms they are:

- **Traditional relationships** – designer-led projects in which design and construction teams are procured separately, one after another, and managed independently. A worked-out design is the basis for construction cost.
- **Managed forms of construction** – design procured separately from construction, the management of which is contracted for a separate fee.
- **Design and Build, including Prime Contracting** – the builder is responsible for design and construction. In Prime Contracting a relationship is developed between the contractor and the entire supply chain.
- **Design, Build, Finance and Operate DBFO** (PFI is an example of this) – a Special Purpose Vehicle (SPV) is created to undertake all aspects of the project including operating it for a period (say 25 years), after which it may revert to the client depending on the contract for the specific project. Instead of spending capital, the client payments are made from revenue budget.

Box 51: Four general approaches to procurement

Approach	Traditional designer-led	Management forms of construction
Description	Design and construction teams procured separately, one after another, and managed independently. A completed scheme is the basis for construction cost estimate.	Design procured separately from construction. Management of construction is contracted for a separate fee.
Some variants	<ul style="list-style-type: none"> • Two-stage version. • Stage 1: contractor procured before design is completed on the basis of partial information. (overheads and profits, preliminaries and programme) • Stage 2: contract price is fixed when final design information is available. This can help speed up the process. 	Fee contracting, management contracting and construction management.
Contracts	Separate ones for client with designer, main works contractor and sometimes subcontractors and suppliers.	Client with the designer and with management contractor only, or separately with designer, construction manager and works contractors.

Design and Build (D&B)	Design, Build, Finance and Operate (DBFO)
<p>The builder is responsible for design and construction, including fitness for purpose.</p>	<p>A Special Purpose Vehicle (SPV) is created to undertake all aspects of the project including operating it for a period (say 25 years), after which it reverts to the client. Instead of spending capital the client payments are made from revenue budget.</p>
<ul style="list-style-type: none"> • Prime Contracting • D&B with novated (see glossary) designers who have prepared the design to a certain stage, • Design Build and Maintain (DB&M), • Two stage D&B. • Detailed D&B also known as Develop and Construct • Package deals or Turnkey 	<p>Private Finance Initiative (PFI), Build, own, operate, transfer (BOOT).</p>
<p>Client has one contract with the D&B team, or with a 'prime contractor' who could be a builder or a design specialist. May initially have a separate design contract.</p>	<p>One contract with the Special Purpose Vehicle (SPV).</p>

Box 52: Questions to help select the right procurement route**Project balance – quality, time, cost, risk**

- Is the project quality to be 'ambitious and inspirational' or good but not outstanding?
- How much cost certainty is needed and at what stage?
- How important are time constraints, what is the urgency?
- What is the relative importance of quality, time and cost? Is one more important than the others?
- Will any of these aspects jeopardise the project if requirements are not met?
- How technically complex is the construction?
- What are the unknowns, where are the big risks?
- How much flexibility to make changes at different stages is required?
- Who is best able to control the risk?

Selection and competition ←

- Should there be a design competition?
- Should any design competition be open and widely advertised, or invited from known or recommended people?
- Does the project fall within OJEU thresholds for selection of consultants, contractors or both?
- Is funding tied to the procurement method?
- Do any public/private finance issues apply?

Project management

- Who should manage the project?
- How involved does the client want or need to be?
- Should any aspect be managed directly by the client?
- What skills and strengths are available?
- If the project is managed outside the client organisation, should it be by the contractor, an independent project manager, a design professional, a financial expert, another specialist, or a combination of these?

Risk management

- What is the degree of uncertainty to be expected in funding, in the client's brief, inherent in the site, because of innovation, etc? Will some decisions need to be deferred as long as possible?
- Are potential changes foreseeable?
- Who is best able to control the risks – client, contractor, others?
- Is the client able or willing to carry risks?
- How should carrying risks be compensated?

→
Work sheets 2-5

Box 53: Level of input from different players in the four main procurement routes
 • minor role •• important role ••• major role

Approach	Traditional – designer led	Management approach	Design and Build (D&B)	Design, Build, Finance and Operate (DBFO)
PREPARE				
client	••••	••••	••••	••••
design team	•		••	••
construction team			••••	••••
DESIGN				
client	••	•		
design team	••••	••••	••	••
construction team		••	••••	••••
CONSTRUCT				
client	•	•		
design team	•	•		
construction team	••••	••••	••••	••••
USE				
client	••••	••••	••••	••
design team				
construction team				••••

This table only gives a general picture of the relative influence of different players at different stages. The designer may be employed either by the client or by the contractor, depending on the type of procurement route. When the design team

is part of the contractor's team, then the client may employ a separate designer for the first part of the project or throughout. The use of an integrated team throughout can help ensure that all players have appropriate input. →

Section 2.6.5

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Box 54: Matching the procurement route to different priorities

	Traditional	Managed forms of construction
Project balance: time, cost, quality, risk	The client has contracts with the designer and contractor and can control the level of interaction with each. For prestige and/or owner-occupied projects, a client may prefer this type of involvement though the decision should be made on a case by cases basis. For very small projects it is more suitable than other routes. The sequential process usually results in the overall programme being longer. Cost certainty can be achieved before starting on site (unless redesign is needed to make the project buildable). A two-stage route can achieve early involvement of a contractor. This may be helpful, eg for technically complex projects.	The client has a contract with the design team and therefore considerable control over design. The process does not allow cost certainty before construction as the design is developed in parallel with construction. Target prices can be set and a guaranteed maximum price can sometimes be provided some way through the process. Early involvement of a contractor as manager is helpful for projects that are large or involve complex construction due to the contractor's input on buildability.
Selection methods and competition	There is opportunity for various selection methods, including competitive interview and competition for the design team or for the building design. The designers can help in suggesting suitable candidates for, and in selecting, other members of the team, including contractors and subcontractors, though EU thresholds must be observed..	There is opportunity for various selection methods including competition for the design team and the construction manager. Each package of work can be competitively tendered and the final selection of each works/trades contractor is made by the client on advice from the construction manager and the design team.
Project management – co-ordination of total project	For larger or more complex jobs separate project management for the entire design and construction process may be needed to ensure that nothing is missed. If the client does not have the skills internally, an independent project manager may be needed.	The management of the contracting project is given to a contractor for a fee, The contractor may employ the works/trades contractors (Management Contract) or just manage them, while they are employed directly by the client. The design process is managed independently.
Who carries the risk	The client carries more risk from the construction period than in the D&B routes. Changes are possible but are likely to entail extra time or cost.	The client has contracts separately with various participants and carries much more construction risk than in D&B. The client signs contracts with the specialists who build the project and usually cannot recover losses directly from the construction manager.

Design and Build (D&B) Design and Manage	Design, Build, Finance & Operate (DBFO or PFI)
<p>The contractor undertakes to complete the design and construct the project. A client may employ a design team at the early stages to prepare its requirements, and throughout the project in order to advise on the contractor's design. Sometime consultants are 'novated', ie the contractor takes over their appointment at the time the D&B contract is agreed. Selection of an integrated supply team is generally beneficial. There may be little direct control over design and changes as the project progresses. Cost and time certainty is normally established before design/build contracts are signed but depends on there being no subsequent changes by the client.</p>	<p>The desired balance between time, cost and quality can be set in the requirements, which are for service outputs not a building product. The client must define the quality needed and how it will be judged, before the team is selected. It is essential that the required level of design quality is made clear to the tenderers. The finished building will be managed by the DBFO team so their initial input will consider thoroughly the requirements for this.</p>
<p>D&B contracts are frequently let using a two-stage tender process. The client may require the contractor to use particular designers or specialists, but will have no direct contract with these. Even with 'novated' design, the contract between the design team and the contractor may allow changes of design or the design team that the client cannot influence. Take advice about this. In 'Prime Contracting' a long-term relationship is set up between contractors, supply chain and /or design specialists who are part of an integrated team appointed early in the project.</p>	<p>This demands a lengthy selection process seeking complex services. Only a few teams can compete, as both the client and they typically spend considerable sums of money and a long time preparing material for bidding.</p>
<p>The contracting team carries out project management. There is an opportunity to integrate design and construction ideas from an early stage. The client does not have to choose the project manager, though they may appoint one of their own.</p>	<p>High levels of project management expertise are needed from experienced specialists. Provision for changes that may be needed in the future must be stated in the contract.</p>
<p>The immediate risks of the cost and timing of construction are passed to the D&B contractor. The client needs to be sure that changes are not likely to be needed, as they may be very expensive or impossible.</p>	<p>Risk of construction uncertainties is transferred and the financial burden is spread over time, reducing the immediate risk. The risk for the SPV may be great, which will be reflected in what the client has to pay.</p>

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Glossary

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Evans, R, Haryott, R, Haste, N, & Jones, A, *The long term costs of owning and using buildings*, Royal Academy of Engineering 1998

2 Competitive selection

2.1 Achieving best value (value for money) ←

Most public bodies or public funding agencies require services and works to be procured by a competitive process. The objective of the competition is to achieve the 'best value' or 'value for money' option, the option that represents the best fit to the client's requirements at the most advantageous price – a balance between quality and cost. Throughout, it must be remembered that the fee paid for design is a tiny part of the whole life cost of the building. The ratios of capital cost:lifetime maintenance cost: operating costs (including staff) are 1:5:200 ← for a typical office building. For healthcare buildings the ratio of capital cost to building maintenance to the revenue consequences of the service is reckoned to be 1:2:10. The design fee is only a few percent of the capital cost and, if it can save any small part of the running cost or promote a more motivated or effective staff, then it will pay for itself time and again during the life of the building.

Price competition, choosing the lowest bidder, is still common for the selection of contractors but is not a good way to get best value for either design or construction and may even work against it. Designers and consultants are more frequently selected using a process involving presentation, interview and design.

To achieve best value at all stages of a project, a well-organised and properly-documented procedure is needed to select teams that will work with the client and with each other effectively to produce a good building that addresses both quality and cost.

The processes described below are valid for the selection of any member of the team, for instance architects, engineers, open space designers, contractors and project managers.

2.2 Pre-qualification of applicants

The purpose of the pre-qualification stage is to select a short list of companies capable of providing services or undertaking a task (design or construction) to the required standards and which will be requested to tender competitively to undertake the works. The selection criteria for the eventual successful candidate may be purely quality (most usual for design and other consultants) or a mixture of quality and price.

There are various ways of making lists of suitable candidates:

- Clients can use their own knowledge gleaned in the early stages of developing their ideas to prepare a 'long list' of candidates. This may take considerable time and effort for a client with no previous experience, who will need to consult contacts and professional institutes and understand how to weigh up the rival merits of possible team members.
- Help can be given by the various professional institutions and trade associations (RIBA, APM, ICE, RICS or organisations associated with the building type).
- Specialist advisers can help create a list.
- Constructionline → provides a list of contractors who have met certain pre-qualification conditions supported by the DTI.

- Advertisements can be placed in professional journals to attract suitably qualified people.
- If the project is subject to the EU procurement directives →, notices must be published in the Official Journal of the European Union (OJEU).

←
Work sheet 3

Once a long list has been established, candidates will have to submit information to establish that they are qualified to undertake the task required. Through this process, usually referred to as pre-qualification or expression of interest, candidates are asked to provide details of their experience, skills, financial stability and availability, to assess their basic competence to undertake the work. Typical pre-qualification information should include:

- previous work and commitment to design quality
- size of firm
- financial stability (based on financial checks)
- number of professionals
- range of skills
- size and type of completed projects
- availability during the project period
- references from previous clients
- sustainability policies
- equal opportunities policies
- quality assurance procedures

←←
www.constructionline.co.uk,
0870 607 1602

The client adviser or any specialist advisers deemed necessary, eg representatives from RIBA or CABE, may assist in the selection of architects and designers. Only those who satisfy the pre-qualification criteria should be considered further.

2.2.1 Reducing the list

The long list can be reduced further by rating each firm against a weighted set of criteria based on the prequalification criteria and agreed by the client team and any advisers. Regular clients often use lists of designers or contractors who have been 'pre-qualified' according to criteria developed over the course of many projects.

The final step in the assessment of quality is to interview the short-listed teams. The client and advisers may wish to visit recently completed projects or take up references from previous clients. The competitive interview allows the client to get a feel for the people they will be working with.

2.2.2 Awarding the contract

Once the quality of the prospective tenderers has been established, prices will be required. Various techniques are used, including a 'two-envelope' approach, where candidates place their cost bids in a separate envelope. The client can examine the bid prices of the preferred teams, balance the cost and quality through a pre-determined ratio, which should be appropriate to the project. The final decision may be made, for example, on 80% of their assessed quality score and 20% of their tendered price.

For design teams and consultants, prices may be tendered as one of the following:

- 'lump sum' (fixed price), sometimes broken down into separate costs for various stages
- a percentage of the final cost of construction
- a time-related charge

Although the method of pricing can be chosen by the client, it also depends on the level and quality of the information that can be provided to the designers. Generally, the more concrete the information, such as a fixed budget, specific timescales and a firm brief, the more accurate the price.

For contractors, prices may be tendered as one of the following:

- 'lump sum' (fixed price)
- an estimate against a set of quantities
- a schedule of rates against specific items or packages of work
- a target cost

The method of pricing can be chosen by the client with the project team and depends on the procurement route chosen, the level and detail of information available, the degree of risk being transferred to the contractor and the type of work being procured.

2.3 Choosing the design team

In many projects the client has little influence over the choice of design team. The contractor does this in design and build, PFI and other routes being promoted for better integration and cost control. Where a client has the choice, a small number of architectural firms who pass all the pre-qualification conditions should be selected – for OJEU Restricted procedure a minimum of five is required → The client may want to consider a firm with appropriate design skills but too small or inexperienced to pre-qualify. In such situations one answer is to create a joint team with another design practice with the necessary resources and skills.

Box 55: Competitive selection may be for the following:

Adviser

- early strategic advice – focused on briefing, design, costs, etc

Designers

- architects/designers
- landscape architects
- engineers
- other specialists

Contractors

- construct only
- construction management
- design and build
- specialist subcontractors – design only or design and supply

Many organisations have policies on the selection of consultants, and may have a pre-selected panel of consultants to draw on. You must ensure that the application of these policies is communicated at the beginning of the process to ensure that the teams being considered comply. You should check that the policies are appropriate for the scale of project, for example that their level of professional indemnity insurance is in line with the scale of the project, and does not exclude suitable design teams.

Designers can be asked for a statement including simple sketches or diagrams of their understanding of the requirements, which staff members they will use, how they will meet the timetable and how they will control costs. They can also be asked to prepare concept work at this stage but, as they will have to invest considerable time and resource to do this, a small payment is appropriate. They should then be invited to an interview. Clients must pre-plan and structure interviews to find out the necessary information and to get a 'feel' for the way a relationship with the team might develop. It is useful to:

- devise standard questions
- agree roles and responsibilities of the panel members
- decide how decisions will be made – Will it be by vote? Will there be a power of veto?

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Work sheet 3

For selection using an architectural competition see Work sheet 5

If the client wants to develop the discussion further with two or three firms, more work will be needed before a final choice is made. The candidates should be paid for any further design work they are asked to carry out. There are clear benefits to the client in getting to know the way in which a design team responds to working together, but it is unfair to ask for free input from several design teams. It is unlikely to serve the quality of the final building and suitable, experienced design teams may refuse to participate on these terms. Unsuccessful firms should be notified promptly and it is good practice to give them feedback.

For small projects under £500,000, the process can be shortened and fewer practices need be approached.

2.4 Choosing contractors

The project, the form of procurement and the value of the work will determine the type of contractor required. The process to pre-select a tender list is similar to that described above, although greater emphasis is placed on their experience of comparable works. The tendering processes are also similar but take longer, with cost normally being more important in the final selection of a suitable company.

2.5 Choosing an integrated team

A large proportion of government-funded projects are expected to use some version of design and build (of which one is PFI), where an integrated team is often formed before expressing interest in the project. Different members of the team may have already made partnership agreements with each other and have worked on other projects together. The client only makes a contract with one party and then has to accept the team members that the lead organisation brings, (unless special provision is made for the client to approve additional team members as they come on board).

The selection follows similar patterns to that described above but is implicitly or explicitly for a whole team. An important matter for the client to understand is the extent to which the team is already fixed and well-integrated. This should be considered not only as far as the working relationships between different firms are concerned, but also those between the individuals involved and whether they have worked successfully together before.

2.6 Numbers and timetable

The number of firms to consider and the time they should have to submit material varies depending on the type and scale of the project, the roles being selected and the type of selection process being used and whether the project is subject to OJEU rules which specify minimum numbers. →→

When firms are invited to make initial submissions for pre-qualification, between five and ten firms may be considered. For complex submissions, the number should be kept as small as realistically possible. When the process involves open competition – including through OJEU – the long list is created by the responses received. Careful wording of competition conditions and notices advertising the project will help ensure that the list only contains firms capable of providing a suitable final project.

The short list is best if it contains only very few firms, although where a great many suitable firms have been identified in the first stage, this may be as many as six. If firms are to be asked to prepare extensive material, or if single stage selection is being used, the number should not be more than four and financial compensation should be offered. The PFI process is very costly and time-consuming and normally no more than three firms should carry out the full process.

References & contacts

Construction Industry Board (CIB), *Constructing Success*, Thomas Telford, London, 1997

DOE/DoNH, *Architectural Competitions – A Handbook for Promoters*, HMSO, Crown copyright, London, 1996

←←

Work sheet 3

3 Selection using EU procedures –

Official Journal of the European Union (OJEU) ←

The European Union (EU) regulations set down procedures with strict timetables, advertising requirements and selection processes for contracts over a certain value for supplies, services or works awarded by public authorities, and utility companies or those funded publicly. The intention is to ensure fair treatment of all potential contractors in the EU and to promote transparency.

The regulations apply to all types of design services. As they are continually being developed, it is important to check that the guidance you are using is current. ← Regulation 23 of Public Works Contracts Regulations 1991 and Regulation 25 of the Public services Contracts Regulation 1993 apply to projects receiving public funds such as lottery funds distributed by public or quasi-public bodies such as the Arts Council and Sport England. The only exception is where less than 50% of the funding comes from public sources. Even then, the funders may make it a condition that EU procurement rules are followed. The regulations stipulate:

- community-wide advertising of contracts so that firms in all member states have an opportunity to bid for them
- banning technical specifications liable to discriminate against potential foreign bidders

- application of objective criteria in procedures for tendering and awarding contracts

Unless great care is taken in wording advertisements, the effect may be to prevent design driving selection. The minimum period for selection of contractors is about six months. This is several months longer than might otherwise be needed for an effective competitive selection. This is why organisations often use the OJEU process to choose teams with whom they then make 'framework agreements' lasting several years, as a rule not more than four years, which helps in the formation of effective long-term partnering and development of continuous improvement as a team, as well as allowing them to use the same team on different projects without repeating the full selection process.

The need for supply of goods and services or for undertaking works is advertised in the Official Journal of the European Union (OJEU). This journal covers all of Europe and anyone can tender in response to the advertisements. OJEU is available online and in different languages. Official EU forms, which can be obtained from www.simap.eu.inst, must be used when submitting notices. Suppliers have a set period in which to notify their interest. The evaluation of tenders is made against pre-advertised criteria. The Most Economically Advantageous 'Tender' criteria can be specified in the notice or in the contract documents, and stated in the notice as defined as 'specified in the invitation to

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Further information can be found in OGCs *Successful Delivery Toolkit*, in CUP guidance N° 51: *Introduction to EU Procurement Rules* www.ogc.gov.uk/embedded/object.asp?docid=531 and in Alastair Blyth, *Public Procurement*, RIBA Enterprises, 2003

tender'. If nothing is specified, the award criteria will be deemed to be lowest price. After a contract is awarded, a notice must be placed publicising the placing of the contract.

The rules described below can be difficult to interpret. For example, where a service has been previously provided by someone and the client wishes to retain them again on the basis of the specialised knowledge they now have, this may be acceptable. However it may be difficult to prove the special case. The information below cannot be treated as a substitute for proper legal advice.

3.1 Financial thresholds

The EU procurement rules only apply to 'major' contracts defined by financial limits that are adjusted biennially. Consultant fees are normally deemed to be services and building works are classed as works. The current limits (2002) are shown in the table below. The highlighted band is that applicable to projects with public funding but not from a central government body. It is important to check in up-to-date information if your organisation is a Schedule 1 body or an alternative public sector organisation. If in doubt seek legal advice or use the lower levels. →

← Advice on preparing estimates of project costs, to check whether the procurement falls within the EU rules, is available in Achieving Excellence N° 7 *Whole life costing and cost management*.
←

Box 56: EU Thresholds for Public Sector Procurement (1 January 2002) →

	Supplies	Service	Works
Entities listed in Schedule 1 (S.I. 1995/201)	£100,410 (SDR130,000) (€162,293)	£100,410 (SDR130,000) (€162,293)	£3,861,932 (SDR5,000,000) (€6,242,028)
Other public sector contracting authorities	£154,477 (SDR200,000) (€249,681)	£154,477 (SDR200,000) (€249,681)	£3,861,932 (SDR5,000,000) → (€6,242,028)
Indicative Notices	£464,024 (€750,000)	£464,024 (€750,000)	£3,861,932 (€6,242,028)
Small Lots	Not applicable	£49,496 (€80,000)	£618,698 (€1,000,000)

← Schedule 1 of the Public Supply Contracts Regulations 1995 lists central government bodies. These thresholds also apply to any successor bodies. Source: www.ogc.gov.uk

← SDR – Special Drawing Rights

Services and works are treated differently. The limits for services apply to each service required and each is contracted individually with contracts covered by the Services Regulations. The works limits are applicable to the aggregate of work to be undertaken in a single project. So even if the works are to be awarded on a package basis, for example under a construction management or management contracting arrangement, the aggregate value of all the packages applies.

To calculate whether design services in traditional procurement will trigger the EU threshold limits, the table below can be used to work out approximate design fees on building projects with a value greater than £1 million. Note that the fee level is also affected by many other factors, including the type of building and the project timescale, complexity, market conditions and team reputation. In Design and Build the overall contract cost is the relevant figure – design is incorporated within this.

Box 57: Typical design fees

Architects fees

new works 5.0%-7.2%
works to existing buildings 6.2 %-10.3%

Structural Engineers fees

2.5%-3.5%

Building Services Engineers

2.5%-3.5%

Quantity Surveyor

1.5%-2.5%

Project Manager

1.5%-2.5%

3.2 Three possible procedures

Under the EU directives, three selection procedures are allowed, which apply to any type of services or works, landscape, architecture, fit out and all the services involved in construction. In different countries the rules may be interpreted differently – in Germany, for example, almost all architectural appointments are made through the negotiated route.

3.2.1 Open tender

A notice is published and anyone can submit a tender. This can generate a very large number of responses and involve the client in an inordinate amount of work in assessing them. For tenderers, it carries a low likelihood of success, against an unknown number of competitors and is a poor investment of time and cost. As a result it is less likely to bring responses from high-quality firms with good reputations. The rules specify how quickly clients must respond to requests for information. In practice, open tender is rarely used.

3.2.2 Negotiated tender

The contract is negotiated directly with at least three tenderers if three suitable ones exist and, if not, then with the maximum number available. The rules surrounding this process are very strict, to prevent abuse. Most funding bodies will not condone this process unless it is fully justified and the burden of proof that appropriate conditions apply lies with the contracting authority. Some of the grounds accepted for choosing this route include:

- when for technical or artistic reasons, or to protect an exclusive right, only one contractor is able to perform the contract
- where a contract follows a competition and the client has to award the contract to the successful candidate, for example, commissioning works of art or the award of an architectural commission following a design competition

A negotiated tender can also take place, without prior publication of a contract notice, if no or only inappropriate responses were received in response to an open or restricted procedure.

3.2.3 Restricted tender

A restricted number of tenderers, usually between five and 20, (a minimum of five) is selected from a pool of those expressing interest and who meet any specified criteria. It is generally a two-stage process – once the responses have been received no negotiations are permitted and tenders are evaluated on pre-determined award criteria which have been pre-published in the contract notice or invitation to tender. Clarification meetings are permitted, although as the line between negotiation and clarification is not clear, external advice is advised.

The following principles are important:

- if the nature of the procurement changes from that originally advertised and specified, then a new exercise is needed
- pricing changes are vulnerable to challenge
- all tenderers must be treated fairly and discrimination avoided

3.3 Restricted tender procedure

This procedure is commonly used and allows quality to be considered at two points in the process.

3.3.1 Prior Indicative Notice (PIN)

If the services or works are likely to be above the EU procurement threshold, place a Prior Indicative Notice (PIN) in the OJEU as soon as possible. A single PIN notice can be issued for all the services, but it should make clear whether you intend to award the services as an aggregate or as individual contracts. The PIN is only compulsory where you want to take advantage of the timescale reduction for the return of tenders from 40 days to 26. →

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See below 3.3.4

If a construction management form of procurement is chosen, a PIN notice can be placed for the procurement of all the packages, even if you intend to award them separately (construction management is itself treated as a service). In order to take advantage of the timescale reduction referred to above, the PIN notice must be placed not more than 12 months and no later than 52 calendar days before the main notice is to be placed. It will be published within 12 days of receipt.

The timescales set out here must be observed if an accelerated restricted procedure is to be followed (see next section). However it is possible, and very usual, to publish the PIN notice less than 52 days before the main notice.

3.3.2 Contract notice

Issue a main notice requesting expressions of interest. This notice provides full information and informs parties how to bid for the project. The date for return of the expressions of interest is 37 calendar days from the day after the notice has been sent to the OJEU. If you use the accelerated restricted procedure, (check the EU website for details of when this may apply), this period can be reduced to 15 days. This is only available for clients who can provide a justifiable operational reason for requiring an accelerated procedure. The notice can ask interested parties to provide enough information for pre-selection. Firms can be rejected for the following specific reasons:

- selection/rejection factors such as bankruptcy, professional misconduct, registration on appropriate professional or trade registers
- inadequate economic and financial standing
- inadequate technical knowledge and ability

3.3.3 Additional pre-selection questionnaire

Alternatively, a separate questionnaire can be sent out to those expressing interest, but this will usually prolong the pre-selection process, as after the closing date you have to make sure that everyone has had time to complete and return the questionnaires.

3.3.4 The tender

The tender list must be selected only from those who have expressed an interest and meet any pre-qualification criteria. The selection team may evaluate the responses to rank the returns in order of merit. The tender list should comprise a minimum of five companies and the number must be specified on the OJEU notice. The selection process for tenderers must be transparent and the criteria for eligibility must be very clear. It is not possible to add criteria during selection that have not appeared in the notice, so careful thought must be given when they are defined. It is therefore particularly necessary to include design quality and expertise requirements clearly in the OJEU notice.

The tender period must be a minimum of 40 calendar days. This can be reduced to 26 days if a PIN has been published (subject to the 12 months/52 days rule). It can be shortened to 10 days for accelerated restricted procedures. Select the contractor, service provider or supplier by assessing which tender is the 'most economically advantageous to the contracting authority'. This is in line with the UK government's procurement policy to adopt 'value-for-money' procedures. It does not necessarily mean the lowest tender. Within 48 days of awarding the contract, place a Contract Award Notice in the OJEU. Since 1 May 2002, standard forms of notice have been mandatory. These can be accessed on <http://simap.eu.int>

Time periods involved in the EU requirements are illustrated below. Failure to follow these procedures can and does lead to litigation. It may lead to withdrawal of funding if one of the conditions of funding is that the EU procurement rules will apply.

3.3.5 Contract award notice

This must be sent on completion of the tendering exercise and award of the contract. Tenderers, whether or not they are successful, should be notified and debriefed.

If the process is abandoned and no contract awarded the abandonment must be notified and contractors who submitted an offer must be informed.

Box 58: Selection timescales

		EU procedures	Non EU procedures
1	PIN Notice	Min 52 days, max 12 months before item 3	Not required
2	Identify suitable firms	Not required	1 – 6 weeks
3	Main OJEU Notice (from publication to receipt of expressions of interest)	37 days (15 days accelerated)	Not required
4	Pre qualification/ select tender list	2-6 weeks	2 –6 weeks
5	Obtain approval	Up to 6 weeks	Up to 6 weeks
6	Tender (from issue to return of invitations to tender)	40 days (26 days if PIN is published, 10 days accelerated if accelerated)	4 – 6 weeks
7	Evaluate Tenders	2 – 12 weeks	2 – 12 weeks
8	Interview	2 days	2 days
9	Recommend/ Obtain approval for appointment	Up to 6 weeks	Up to 6 weeks
10	Appoint	1 day	1 day
11	Post Award Notice	Within 48 days of award	Not required

3.4 Quality of design and construction

To achieve quality when using the EU procurement procedure, the client and advisers must clearly state their design quality requirements in the content of the formal notices announcing and describing the project and its requirements.

Potential design teams and contractors need to be able to identify the project as of interest and relevance to them and to understand the client's criteria for selection. For example the 'Category of Service' in the OJEU Notice for Services gives an opportunity to describe the scope of the project.

It is also common for clients to advise firms they wish to make a submission that a notice has been published in the OJEU and to advertise in the trade press such as Building Design, the Architects' Journal, Contracts Journal, Regeneration and Renewal and Planning, announcing the project and referring to the OJEU notice. Once a notice is published, the client is committed to the award criteria set out in it.

3.5 The timetable

The timetable below is for selecting contractors for works under the restricted procedure. The items in bold are mandatory.

For the EU process, this equates to a minimum of 120 days (17 weeks) to award if the PIN and main notices are issued simultaneously, and minimum periods are required for evaluations, approvals, etc; and a year and a half or more to award if the maximum PIN period is used and maximum time is required for evaluations and approvals etc.

The timetable for selecting consultants differs slightly:

- the pre-qualification/selection of tender list period can be shorter (one to four weeks instead of two to six)
- the tender period can drop by two weeks, from 40 to 26 days, if a PIN notice is served 52 days before the main notice
- the maximum time for tender evaluation is six rather than 12 weeks

So the maximum tender and evaluation periods for selection of consultants is eight to ten weeks shorter than that for contractors.

References & contacts

Office of Government Commerce
www.ogc.gov.uk
Successful Delivery Toolkit contains
Achieving Excellence suite of
construction procurement guidance,
and OGC site links to Procurement Policy
and EU rules including guidance notes
and thresholds

Tenders Electronic Daily Database (TED)
www.ted.publications.eu.int
Free access to online version of the
Official Journal of the European Union
(OJEU), updated daily

UK Legislation
www.legislation.hmso.gov.uk
Free download of Statutory Instruments
and UK legislation

Address for all communications
and notices:
Office for Official Publications
of the European Union
2 Rue Mercier
L-2985 Luxembourg
T 00 352 49 92 81
F 00 352 49 00 03

Official EU forms on which to submit
OJEU notices
www.simap.eu.int

Notices can be forwarded electronically to:
mp-ojs@opoce.cec.eu.int
Information on electronic procurement,
codes and standard forms of notice can
be obtained on this site.

4 Procurement in partnership with the private sector

This worksheet explains how a public sector organisation can ensure design quality through Public Private Partnerships (PPP). In doing so it highlights the points in the process where design should be considered and safeguarded.

Partnerships between the public and private sector are evolving and some of the new developments are discussed below. The changes reflect some of the recommendations made by CABE and the OGC in *Improving Standards of Design in the Procurement of Public Buildings* that seek to improve the design of public buildings and obtain better value for money for public expenditure on construction projects. CABE has also published guidance for clients using a PFI for school building design, much of which is useful when making decisions on other types of project.

→→
Fig 18 and Section 2.6.6

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CABE Client Guide:
Achieving well designed schools through PFI.

4.1 The partnership process

Partnerships between the public and private sector may involve providing capital-intensive services throughout the lifecycle of a building, not simply the provision of the building itself. Engaging a private sector partner involves several private sector bidders competing in response to the public sector's output-based brief (output specification). This brief defines the levels of service a project should deliver but not how they should be delivered. The public sector selects the preferred bidder on the basis of how well the bidder responds to the needs of the public organisation, usually broadly focused on technical, financial and legal criteria. There is one contract, between the client and a single party, the Special Purpose Vehicle (SPV) set up for this project. To incorporate the wide skills requirements and extensive funding needs, a consortium of different companies is normally formed to take on the project.

The client must provide a brief and establish an ongoing evaluation process to ensure that the building will meet both the functional requirements and high standards of design. At the earliest opportunity the client must inform all bidders that design quality will be a key determinant throughout the selection process, and follow through this commitment in the briefing and the weighting during evaluation.

Box 59: 11 Recommendations for improving standards of design in procurement of public buildings

- 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 or proceed until they do.
- 3 Government departments should repeal or update procurement guidance to bring it in 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, 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 PRG (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.

Improving Standards of Design in the Procurement of Public Buildings
pp 19 / 20, CABE/OGC

4.2 PPP and PFI

Public Private Partnership (PPP) involves a partnership between the public and private sector in which there is a sharing of risk and financing and sometimes a transfer of assets. In the past this type of model has applied to significant capital projects, such as the London Underground, and would have been an unlikely procurement route for smaller public sector organisations.

Private Finance Initiative (PFI), a type of PPP, refers to the procurement of public sector accommodation and facilities by transferring risk and financing to the private sector over a fixed term contract, usually between 25 and 35 years, but sometimes as long as 60. The process aims to enable the public sector to benefit from private sector skills, creativity and expertise in management, finance and design. This method of procurement is recommended for projects over £20M. ←

The process is still evolving. In the NHS a new investment mechanism has been developed called the Local Improvement Finance Trust (LIFT). This is a PPP that delivers investment and services. Locations that have not previously benefited from comprehensive health and social services, in particular inner urban and very rural areas, are being targeted. This model has been adapted to provide new facilities in the schools sector, where it is known as the Joint Venture Partnership Framework and will deliver a major schools' renewal programme. This model was initially used for investment in voluntary-aided schools.

In practice, the PFI transfer of financing and risk occurs in two ways:

- Design, Build, Finance and Operate (DBFO)
- Design, Build, Finance and Manage (DBFM)

DBFO is often described as a 'pure' form of PFI, insofar as the risk of both financing and operating the service over the contract period is transferred to the private sector, for example PFI prisons. More typically, PFI is a hybrid arrangement in which, over the contract period, the private sector provides and maintains the facilities supporting the delivery of a public sector service that remains to a great extent the responsibility of the public sector, for example hospitals and schools.

One of the major benefits of PFI procurement is that the commitment to long-term operation or management should help focus on proper consideration of whole life costs during the development of the design. The task of the PFI public sector client is to ensure that, through the process and by fulfilling their own responsibilities as a client, the full benefits of whole life costing is achieved.

The procurement processes in PPP projects are different to those for conventional procurement. Developing a PFI project, for example, is resource intensive in terms of time, skills and money: it can sometimes take two years to seal a PFI contract and more before the work starts on site. The tender process for the PFI procurement team starts before design work commences and

→
HM Treasury *PFI: meeting
the investment challenge*,
July 2003

develops with the design as short-listing proceeds. When a provider has finally been selected, outline design stage will have been reached. Detailed design will be developed in conjunction with the contractor, as for Design and Build projects. The briefing and design development process will also include the facilities management team, which is always desirable but is not automatically the case in more straightforward construction procurement routes →→. It is also important to recognise that the design proposal is only one part of the overall proposal the PFI bidders are presenting and developing through the bidding process. The choice of preferred bidder will be a informed decision that balances the different aspects and qualities of the bid.

The design team develops the project before a bidder is selected and therefore before they have close contact with the end-user (the public sector organisation). This means that the public sector organisation must ensure that it develops a thorough understanding of its needs and expectations and communicates these clearly through a competent and careful detailed brief.

4.2.1 LIFT

The Local Improvement Finance Trust (LIFT), is an example of a way in which public private partnerships are being developed in the health field. This concept, which focuses on deprived inner-city areas, has been developed to help implement the NHS plan of upgrading existing primary care premises and developing new centres. The new or refurbished premises will be leased to GPs and other healthcare professionals →→. The approach is being adapted for schools and could be used for any project type.

4.2.2 Prime contracting

Prime contracting is another form of partnering between the public and private sector. This is not a partnership in which financing and risk is transferred, rather it is a process through which mutual benefit is derived from closer working relationships in the construction sector, including integrated design and construction teams that are appointed by the public sector client very early in the process. This can enable the team to work in partnership with the public sector client more efficiently and deliver a better-designed product that meets their needs.

The MOD's Defence Estates uses prime contracting as a preferred procurement route. Its publication *Building Down Barriers*, sets out seven key principles for prime contractors. These emphasise the integrated supply chain, the need for continuous improvement and the objective of whole life value.

4.2.3 Framework agreements

Procure 21 led by NHS Estates, allow clients to select an integrated team from a pre-selected list of tenderers. At the early stage of developing a project, the client invites the list of tenderers to express an interest and those interested are then interviewed. The contract is awarded on the basis of the team's response to the client's needs within the context of open book accounting.

Some departments have experimented with running a parallel process to select a designer who meets their design quality aspirations and is then later novated to the PFI team. Other procurement patterns that combine public and private input are being

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Section 2.2.7a

More information can be obtained at www.nhsestates.gov.uk and from the LIFT prospectus *Modernising Primary Care in the NHS*, also available on the site.

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developed, for example in the field of education. Variations will continue to be tried out and refined.

4.2.4 PFI procurement

The PFI process has been divided into 14 stages, which have slightly different nomenclature in different documents. The one shown here is from the Treasury Taskforce Technical Note 7 *How to achieve design quality in PFIs*, part of the first series of advice on PFI. ←

Each of these stages exist in other procurement routes, though sometimes in a slightly different order, and for each there are client responsibilities and ways the client can help progress towards a successful outcome.

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Currently available on the OGC website at www.pfi.ogc.gov.uk/pfi/series_1/step/step0.htm which also contains detailed information and further references Information on PFI will soon move to the HM Treasury website: www.hm-treasury.gov.uk.

4.3 Client responsibilities in relation to PFI procurement

4.3.1 Stage 1 - Establishing business need and appraising the options (this is often referred to as the Strategic Outline Case or SOC)

As with all other procurement routes, it is during the early stages that significant value can be added to the final outcome. The value lies in very clear thought to develop an understanding of needs, appraise options and evaluate the best way forward. To achieve this the client body needs a highly motivated and skilled project team that develops a full understanding of the process and organisational needs. Whole life value should be included at this stage to allow a realistic understanding of the budget to develop as early as possible. Feasibility studies should be commissioned to help develop the team's understanding of the opportunities, risks and costs associated with the options and to test viability. These should be carried out with care and regard for design quality to ensure that design-related costs are identified. A well thought out feasibility study can be developed into a design exemplar or reference scheme as the project progresses. Not only will this act as a quality benchmark for bidders and help 'tease out' functional issues with users, but it can act as a basis for obtaining outline planning consent (under present legislation) and resolving planning issues such as siting, massing, access and highways.

This is also a good time to start exploring other external factors that could benefit the project, for example early contact with potential partners in order to maximise the regeneration impact of the project.

This is the best time to start embedding the need for design quality into the process and amongst the staff and consultees responsible for delivering the project. For example, at this point the organisation's design champion will have a significant role in leading the organisation towards an understanding of design quality and what benefits it brings. If the client organisation does not have a design champion, now is the time to appoint one.

4.3.2 Stage 2 – Appraise the options

At this stage the client must consider seriously whether or not a project is a suitable way to achieve the change that appears necessary. Are there other better alternatives than the project being proposed? →

Create a project team

The clarity and quality of the client's information and the ability to ensure the brief is adhered to throughout the procurement process are vital to the quality of the outcome. This means that the client must have a project team with the skill, experience and calibre to get it right. The quality of the team's early strategic thinking will have a direct impact on the quality of the end results. Equally, how the team manages the process will impact on design; management structures should be established that ensure design is considered and evaluated alongside other

priorities. This will facilitate effective consultation and feedback with the users and other stakeholders to ensure that the brief is developed as a balanced, robust documentation of the organisation's needs. A project delivery plan will provide a basis for demonstrating how the objectives will be achieved through the process.

Various skills will not be available in-house and the team may need to appoint several advisers, including a design adviser. Design standards must be set and communicated well before designs are being considered and they should be monitored throughout the design evaluation process.

4.3.3 Stage 3 – Outline business case and reference project

Once it has been clearly established that PFI offers the best approach in relation to value for money, the outline business case (OBC) is developed. The OBC should define the client's objectives clearly and demonstrate that the PFI route offers better value for money than the Public Sector Comparator using traditional procurement. →

The client also needs to refine the brief further. The brief is an internal working document that will form the basis of the output specification (OS), which will be a clear definition of what is being sought. It should not be a description of a particular asset but a prescription of a particular service. As it develops it begins to fix the requirements and structures of the project and ensures that aspirations and standards are set and documented.

←←
Section 2.1.2

←
HM Treasury Treasury Task
Force Technical note 5 –
*How to construct a Public
Sector Comparator*

Further feasibility and design work may be required to test and expand the client's understanding of the issues and, in some cases, designers produce exemplar designs to help the client understand and set the quality that they will expect of the winning consortium. Photographs and articles describing and benchmarking other projects can also be used to describe the standards required.

A reference project is developed representing a possible solution to the output requirement. It should be worked up in sufficient detail to calculate accurate costings so as to be sure the project is affordable and that any risks are identified. Robust and quality design must be incorporated in order to provide realistic costs as, if not, design quality could be jeopardised at a later stage by attempting to cut costs to meet the target set by an unrealistic reference project.

Working on the brief

The brief should cover the aspirations and project objectives of the project team and stakeholders, setting out whom they are, their responsibilities and the structure that will allow them to take decisions during procurement. The timetable must allow the client time for decision-making and consultation and, once the design team has been appointed, give it sufficient time to develop and detail their scheme fully. Critical dates must be documented to ensure that changes are negotiated, not assumed.

To reduce risk, information about the site and any existing buildings should be thoroughly researched and documented. Lists should be developed, setting out hard

issues (surveys, site ownership, etc) and soft issues (eg regeneration and community access), relevant to the development of the site. Environmental services, structural issues, budget constraints and specialist inputs will need to be flagged, along with sustainability and innovation aspirations.

The function of the building and the relationships that are required in it are of prime importance and will be tested in the reference project. It is essential that the brief is not changed once this has taken place. Stakeholders should be fully involved in developing this aspect of the brief, highlighting future changes and the resulting flexibility requirements. The planning authority will almost certainly take a proactive role in clarifying any planning constraints on the development and it is advisable to keep the planners closely informed as the project develops.

4.3.4 Stage 4 – Developing the team

A full strength team may not be needed until it is clear that the business case can and should be met by a PFI project. However the client will need a project team before this stage and many of the important members need to be in place, so that proper attention is given to the vital task of starting to prepare and test the brief against the organisation's aspirations. Once the decision to proceed with PFI is made, the full client team will need to be identified.

4.3.5 Stage 5 – Deciding tactics

The details of procurement must be decided. A client adviser can help establish how many selection stages are appropriate, how many bidders there are

likely to be and therefore what pre-qualification information to request →→. The importance of being able to deliver design quality must be incorporated into prequalification conditions.

4.3.6 **Stage 6 – Invite expressions of interest, OJEU notice**

As with any project required to use EU procedures →→, the OJEU notice must mention design quality as a criterion against which consortia will be judged. In determining the design quality credentials of bidders it is not sufficient to give them a simple matrix requesting information about projects they have carried out. The acid test for whether the importance of design quality has been effectively expressed is whether a distinguished practice with a reputation for good design but with limited experience of the particular building type would make the short list and be available for closer consideration.

4.3.7 **Stage 7 – Pre-qualification of bidders**

Bidders submitting expressions of interest need to be evaluated against the minimum pre-qualification criteria. The client must be sure to comply with all EU regulations, which is why it is so important to word the OJEU notice carefully and ensure that unsuitable consortia would not be able to pre-qualify.

4.3.8 **Stage 8 – Selection of bidders**

This stage involves narrowing down the list of pre-qualifiers. The way in which design quality will be delivered should be considered carefully. The lead company in the consortium will have a major influence over design, as will the dynamics of relations between other members of the

consortium. Track records of individual organisations and their performance when working with each other should be reviewed in relation to design quality, including whole life costing, energy considerations and in-use efficiency savings. Appraisal of the bids should focus on the quality and detail of the schemes and the associated life cycle costs. It is a question of assessing the quality that can be developed within a given budget rather than cost cutting – the design adviser must be central to the appraisal of the design schemes.

4.3.9 **Stage 9 – Refine the appraisal**

Before issuing invitations to negotiate, the original appraisal (Stage 2) should be reviewed to draw on knowledge gained during the process so far. The business case and any Public Sector Comparator (assessment of alternative procurement of the same facility by non-PFI methods) need to be refined in light of any new information available. The business case and the advice on which it is based should be reconfirmed before more expenditure is authorised. At this stage the client must ensure that funding is in place or will be available as required.

4.3.10 **Stage 10 - Invitation to negotiate (ITN)**

Three consortia will be issued an invitation to negotiate (ITN), including documentation of the valuation criteria and procedures and the output specification, together with draft contracts. The design teams will now be asked to produce the scheme design and intense negotiation will begin, along with further user and stakeholder consultation. It is important to allow enough time to consult the various

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The principles of thoughtful competitive selection are set out in Work sheet 1 and the client will need to consider the impact this particular project will have on them.

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Work sheet 3

stakeholders thoroughly – the built project will benefit from their ownership and pride. At the end of this phase each consortium bidding will produce a scheme design and detailed costings developed with their contractor and FM provider.

Public organisations should note that this bidding process can require the bidding consortia and their teams to incur significant costs, which are eventually passed on to the public sector. Responsible and informed public sector clients should establish an efficient selection timetable with reasonable requirements and stick to it. Exemplary clients invest in the early stages and benefit from a quicker bidding process and better quality bids.

Sometimes an invitation to submit outline proposals (ISOP) is issued before the ITN. This allows bidders to be selected on the basis of the quality of their outline or schematic designs; significant variations from these are not permitted. This has the advantage of making the initial selection on the basis of design quality only.

4.3.11 **Stage 11 - Receipt and evaluation of bids**

All the criteria established at the start of the process for meeting the brief and delivering high quality design have to be used to test the designs and proposals put forward. It is important that the design champion, client adviser and client user assess the quality as well as the financial and service delivery criteria now. This may entail meeting bidders to ensure that their proposals are fully understood.

Clarifications and modifications must be formally recorded. It is also possible for the client to seek a best and final offer from bidders, incorporating any clarifications received. If this approach is likely, it is good practice to state this in the ITN.

4.3.12 **Stage 12 – Selection of preferred bidder and final evaluation**

Once the preferred consortium has been selected, sufficient time must be allowed to develop the scheme design and produce detailed design documents. The client, led by the design adviser, must stand by their listed aspirations and standards to avoid 'design drift' and to develop a creative partnership between the client, stakeholders and the consortium. Any final negotiations should be limited to fixing the final detail of the transaction documentation and confirming that the funder is comfortable with the risk that the consortium has embodied in their bid.

4.3.13 **Stage 13 – Contract award and financial close**

This should be straightforward, although there is a considerable amount of legal documentation to be put in place and it is prudent to allow up to four months for this process. Many of the client team and their advisers are now able to disperse but, before they do, a post-project review of the process to date should be carried out to enable other teams to benefit from what has been learnt.

4.3.14 **Stage 14 – Contract management**

Continuity is required even though this stage will have different systems and new management responsibilities. It is important that the consortium design team is retained to monitor the quality of design and finish during construction, although design standards and quality thresholds included in the output specification should safeguard against quality dilution. It is also important that champions of all aspects of quality are retained on the client side to ensure that the vision and intentions continue to be adhered to during construction and the associated design refinements that will take place.

References & contacts

CABE, *Client Guide: Achieving well designed schools through PFI*, London, 2002

HM Treasury *The Green Book: Appraisal and Evaluation in Central Government*, 2003

HM Treasury *PFI: meeting the investment challenge*, July 2003

HM Treasury *Treasury Task Force Technical note 5 – How to construct a Public Sector Comparator*

5 Design competitions

5.1 Advantages and disadvantages

A design competition is a selection process where the focus is on choosing design ideas or an outline design for a project. A design competition is often inappropriate as it may divorce the design team from the development of the client's brief, thus reducing the benefit that a good design team can bring to the project. A competition to select an outline design is only appropriate if the client has a well-developed brief for the project. The client should be clear before starting whether they intend to work with the winner towards a built project. It is generally preferable to select a designer using competitive selection. ←
If the design service is above the relevant applicable cost threshold, the OJEU procedure may be required. ←

It can be appropriate to choose a design team using a formal design competition, for example where:

- there is a unique problem that will benefit from a wide range of design approaches being explored
- considerable public interest calls for a public process
- when the competition promoter wants to encourage new talent or improve local design standards

A competition has the advantage of providing opportunities for promoting the project to stakeholders, for example through an exhibition of the designs and in some cases by involving them in the briefing process. It may widen the range of creative input available and allow you to look at ideas that would otherwise not have been considered.

A competition may add to the early costs, although the overall amount is small in relation to the rest of the project. Competitors should be paid a fee, and prize money may add 0.25%-1.5% to the costs of the project. This is a small amount if the result is an excellent and appropriate design. The time taken for the process can often be integrated into the overall timetable, but substantial management time and effort is needed, which may not be available, especially if the client organisation is small.

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Work sheet 2

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Work sheet 3

5.2 Types of competition

There are different ways of organising competitions, depending on the eligibility criteria and number of stages. CABE can advise on the appropriate competition format and suitable criteria for judging the outcome. The RIBA competitions office can also provide advice.

Box 60: Types of design competition

- ideas
- open single-stage design
- open two-stage
- limited
- invited entry
- design and build
- development

5.2.1 Open and limited competitions

An open competition is advertised, any designer or architect may enter and the entrants are anonymous. The same processes can be used where entry is limited – restricted to a particular category such as age band or location of practice. The competition can be in one or two stages. Open competitions may be most suitable if the client wants to promote or benefit from new ideas in architecture.

5.2.2 Competitions in single or two stages

In a single-stage competition, design teams are usually allowed four to eight weeks after receiving the brief to prepare an entry, depending on the complexity of the project.

In a two-stage competition, people are given the outline requirements at the first stage and asked to suggest approaches. They should not be asked to prepare complex material, so the time allowed for this stage is shorter than for a single-stage competition. A shortlist, normally comprising three or four firms (and a maximum of six), is made of the best responses and candidates are asked to develop their ideas further. The architects competing in the second stage are generally paid a small fee (an 'honorarium' as no contract is implied) to pay for the often considerable effort required. The advantages of a two-stage competition are that potentially good ideas can be checked at the first stage to be sure that they do not have significant flaws. In the second stage, candidates have an opportunity to develop a better understanding of the client. Anonymity is harder for this stage. It is a more expensive and time-consuming approach than a single-stage competition and is not usually suitable.

5.2.3 Invited competitions

Invited-entry competitions are a possible route when a client does not wish to risk appointing an unknown architect. They are not acceptable under EU regulations.

5.3 The process and timetable

A client arranging a competition needs help from someone experienced who can advise on selecting a suitable form of competition and writing the brief clearly. It is also important to be sure that the competition rules do not commit you to continuing with a winner that is unsuitable. The rules must define the circumstances in which the winning scheme would be unworkable and what happens if this is the case. Other important aspects of procedure include:

- preserving the anonymity of entrants
- treating all entrants identically
- sending answers to any permitted questions to all entrants
- selecting an appropriate jury and being sure that they fully understand the brief
- avoiding requesting very detailed design
- setting suitable prizes and relating them to the amount of work requested
- arranging publication of the schemes and planning any exhibition of entries carefully

The time taken to select a design team by competition can be 17 to 26 weeks for a single-stage and 23 to 31 weeks for a two-stage competition, according to the timeframes suggested by RIBA's competitions office.

The client will need administrative support to organise the competition as outlined above, as well as an architectural adviser to help ensure that the appropriate information is provided for

entrants. The assessment team should include, if possible:

- two independent architects
- the client design champion
- people with a good knowledge about how the building will be used

5.4 The brief for competitors

The client must provide a brief and state the conditions of the competition clearly. The information must include:

- the vision and functional requirements to an appropriate level of detail
- the budget and timescale for the project
- full survey information, showing levels and the surrounding buildings in elevation form
- the time allowed for submission
- what presentation material is required – whether written as well as drawn submissions, whether traditional paper-only or electronic, drawing sizes and scales, etc
- any provision to ask questions for clarification
- the criteria on which a decision will be based
- whether there will be prizes and exhibitions of the submissions
- a clear statement about whether the client will use the winning team to progress the project

Box 61: Suggested design competition timeframes

The time required will vary depending on the scale of the project, whether OJEU procedures must be followed, whether it is a single of two stage competition, and how much detail is required at stage 2

Client preparation Appoint adviser, decide competition rules, prepare initial brief and start preparing 2nd stage brief, appoint selection panel/jury, advertise if required	1-6 months
Client launch competition Circulate invitations, rules and initial brief	1 week
Teams preparing submission 1st stage (Short period - 2 weeks - may be possible if 1st stage is only for expressions of interest and/or accelerated OJEU process being used) Complete 2nd stage briefing material by the end of this period	2-6 weeks
Client evaluating submissions and short listing for 2nd stage	1-2 weeks
Short listed teams proceed to stage 2 Issue brief, site visits, answering questions (short period – 2 weeks – may be possible for small schemes and ones where little detail is required from the teams)	2 –6 weeks
2nd stage submission	
Client evaluation of entries Technical evaluation, exhibition of entries if required	1-3 weeks
Final judging of entries, interviews and decision	1 week
Announcing the winner	

5.5 Avoiding problems

- The working relationship with the designer is of prime importance. A competition will select a designer without testing whether this will result in a good working relationship with the client. It is worth trying to build the relationship before committing to the design and the team.
- If the client does not like the winning design, their legal position depends on what is in the competition conditions. A two-stage competition, good architectural advice, a well-written brief and a jury with proper understanding of the client's needs can all reduce the danger of an unacceptable result.
- Sometimes a winner may be an enthusiastic, committed, inventive designer who does not have the experience, turnover or resources that the project will need. The competition rules can allow the client to team the winner with a suitable partner who can provide the necessary input to help develop the project. This possibility must be allowed for from the start in the rules if it may be considered.
- A winning design can be one that has ignored some aspect of the brief. It may be that this is the best solution to the client's needs and site opportunities and that the brief was not fully explored before the competition was launched. This poses a dilemma for the client as, strictly, the entry should be disqualified. This underlines why good architectural advice early on is very important and why competitions do not always give the best chance to get good design from a good designer.
- The client can change the brief after selecting the winner, provided the competition rules and outcome are not distorted.
- A winning scheme can fail to get planning approval. To reduce the danger of this, the brief-writing stage should include discussion with the local planners. The risk of a competition design being denied approval is no greater than for other designs.
- Other stakeholders may dislike the winning design. The client should consult with these when preparing the brief and be clear in advance whether an unpopular design would still be built. The position should be made clear in the competition rules.

References & contacts

DOE/DoNH, *Architectural Competitions - A Handbook for Promoters*, HMSO, Crown copyright, London, 1996

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