Design

The role of the client changes during the design stage and it is important to understand how these changes affect what you do. You will need to check that the project meets statutory requirements, ensure timely decisions are made, and that you are monitoring design quality throughout.

**Understanding the design stage**
The client is responsible for decision-making throughout the design stage. Only agree design proposals that you fully understand, including their costs.; by the time the design stage is complete, the cost of construction and running the building is set.

**Meeting standards and statutory requirements**
Your project may be at risk if you fail to meet the relevant national, local and site-specific statutory obligations before beginning detailed design work.

**Monitoring design quality**
Design quality is no longer regarded as too subjective to measure. You can be quite specific about the quality of design you expect to see.

**Integrating fixtures, fittings and equipment**
Some of the technical components of buildings are so integral to the building design that they can make or break the overall finished result, even though they may not at first seem to have anything to do with the look or feel of the building.
Understanding the design stage

The client is responsible for decision-making throughout the design stage. Only agree design proposals that you fully understand, including their costs.; by the time the design stage is complete, the cost of construction and running the building is set.

As the client you are responsible for ‘signing off’ outline proposals. This means agreeing that a particular aspect is finalised and defined, and that it won’t be revisited.

As a guide outline design proposals might include:

- design drawings
- a schedule of accommodation
- the outline description of what the building is made of and how it is serviced.

You should only accept design proposals that you understand and that have been costed fully. You can reject or modify design proposals and should only accept ones that have been fully explained and understood. Although relatively little money has been spent by the time the design stage is complete, the decisions you make in this stage will fix the costs of construction and running the building for many years to come. It is hard to change designs once they have been agreed because any changes made after this are likely to result in extra time and cost.

During this stage the project team will also expect you to carry out other client tasks required under the contract, for example, payment scheduling and site access issues. Your advisors should clarify what these are.

What happens at this stage?

The design team develops and tests the project, starting with diagrams and sketches, and moving through sketch designs to more complete designs of the entire building.

This detailed brief is followed by the detailed design of all the component parts and how they are joined together. This is described in drawings and the specifications.

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

An iterative process

The design process is iterative and roughly repeats the following stages:

- pose the problem
- offer a solution
- clarify the problem
- develop a more suitable solution.

For this process to be effective the design team and client need a common language and a shared understanding about quality aspirations and possibilities. The design
should be accompanied by written descriptions of the specification, the purpose of the building, how it may be used and how it could be adapted over time.

For example, decisions on building fabric – the amount of glazing, its orientation and shading, the amount of insulation and finishes – can have drastic effects on how much a building will cost to run. They also form the basic parameters that the environmental engineer will use to size the systems that control the internal environment of the building. These factors need to be considered alongside aesthetics and functionality.

As the design develops it may influence your ideas about how the building could be used. Discuss these with the design team because they may influence what the designers are able to create.

At all stages your design champion must continue to support the best possible design solutions, making quality checks against the vision and outline brief.

**How do I fully understand the design?**

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 - the effect of the building in its context.

During the early design stages there should also be constant reference back to your vision and outline brief, and the feasibility, cost and business plans. It is vital to consider the lifecycle costs of the design at this stage. The client has generally only spent the money for consultants’ fees when 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.

The format outline design proposals take could vary depending on your project. As a guide they could include:

- design drawings
- a schedule of accommodation
- the outline description of what the building is made of and how it is serviced.

Once these 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.
Meeting standards and statutory requirements

Your project may be at risk if you fail to meet the relevant national, local and site-specific statutory obligations before beginning detailed design work.

You need approvals to move your project from the drawing board to reality. The range of regulations and constraints that a design proposal needs to satisfy is increasingly daunting. Obtaining some of these is straightforward, but others take a long time.

Your design team should be aware of the approvals you require and apply for them at the right time. Avoid proceeding with the design ‘at risk’, that is, not being sure of whether what you are designing is possible. If permissions are withheld it may mean your project is not viable.

How do I meet statutory requirements?

1. **Test your proposals against planning authority rules and policies**
   Be aware of the relevant planning issues before starting design work. You can start this by simply checking the local planning documents, which set out the long-term plan for your locality.

2. **Decide what other statutory criteria your proposal needs to fulfil**
   There are many other types of permissions that you will need as your building proposal progresses. The lists below are not comprehensive but indicate the range of relevant permissions. Some of these will be carried out as part of the planning process.
Test your proposals against rules and policies

Be aware of the relevant planning issues before starting design work. You can start this by simply checking the local planning documents, which set out the long-term plan for your locality.

There may also be other planning requirements specific to your local authority; make sure you understand these so that they are taken into account in the design, and applied for in good time.

Organise a time to discuss your early proposals with the local authority’s planning department. Find out what types of use or buildings are acceptable on the site, and then move to more detailed discussions about design. Some local authorities will charge for this service. The earlier you do this the sooner you’ll find out whether there is any likelihood of difficulties that may involve special requirements or lead to planning permission being delayed or refused.

Be aware that permissions for complex or controversial projects can take much longer than the minimum eight weeks: nine to twelve months may be needed in some cases.

The following is a checklist of some of the planning considerations that may be relevant to your proposal. This list is not exhaustive. Many will be covered by your local planning authority; some may involve other parties:

- planning laws
- listed building consent
- local acts
- building regulations
- CDM (construction, design and management) regulations
- environmental performance, such as meeting the Code for Sustainable Homes or BREEAM (Building Research Establishment Environmental Assessment Method) requirements
- party wall agreements
- tree preservation
- contract law
- health and safety
- adjoining owners, covenants, rights to light
- archaeology
- utilities
- highways
- water regulations.

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Decide what statutory criteria you need to meet

There are many other types of permissions that you will need as your building proposal progresses. The lists below are not comprehensive but indicate the range of relevant permissions. Some of these will be carried out as part of the planning process.

Issues to consider relating specifically to employers and building owners include:

- health and safety
- light levels
- Disability Discrimination Act (DDA)
- property law
- operational facilities management
- insurance.

Issues to consider for all projects that will be used by the public include:

- fire safety
- fire escape
- hygiene
- licences.
Monitoring design quality

Design quality is no longer regarded as too subjective to measure. You can be quite specific about the quality of design you expect to see.

Setting out ways to measure design quality is an important part of making sure that your project fulfils or exceeds your expectations.

Before you continue, make sure that you read about:

- why you should insist on design quality
- when you should monitor design quality
- tools used to monitor design quality.

How do I monitor design quality?

1. **Decide on your priorities**
   To do this at a building scale, you need to understand how design quality has an impact across the broad issues, the personal scale and the detail, in order to understand how to invest wisely.

2. **Benchmark your project**
   You need to compare your project to what others have achieved in similar circumstances so you can put design decisions in context.

3. **Identify the right design assessment tools**
   Identify early on which design assessment tools you wish to use.

4. **Don’t approach monitoring as a tick-box exercise**
   Avoid the risk of seeing design assessment tools as hoops to jump through.

5. **Plan how you will monitor/assess design at different stages**
   Many of the available tools are useful at various stages of a project. They are intended to be checked back on as the project progresses.

6. **Consider an external evaluation of your design**
   As well as internal assessment, you could consider an external evaluation of your design to get some impartial feedback.

7. **Commit resources to evaluate quality**
   Evaluating the building in use to see how it performs against your brief can be useful for your organisation and other clients.
More about monitoring design quality

There are a wide range of assessment tools available to help achieve design quality. Some are tailored to certain issues, such as sustainability, or building types such as healthcare or schools.

Tools used to measure design quality

They are designed to be used at various stages of a project to help you assess aspects of design quality as your project progresses.

Many of the standard design assessment tools will require you to employ an expert assessor to lead the assessment. For example, the design quality indicator (DQI, see below) functions through a combination of structured workshops and online tools. You should factor in a fee for using tools online and for facilitators for the workshops.

Here are some of the more common tools that you may wish to use.

Design quality indicator (DQI)

DQI is a tool for assessing the whole project. It is designed to be used in consultation processes, and is based on three aspects of design quality: impact, build quality and functionality:

- impact: assessed in relation to character and innovation, form and materials, internal environment, and urban and social integration
- build quality: assessed in relation to construction, performance, engineering systems and their robustness
- functionality: assessed in relation to whether it is fit for its use, accessibility and space.
Measurement tools such as the Design Quality Indicator (DQI) allow various design quality components to be measured together.

Clients, designers and stakeholders rate aspects of a project on a simple six-point scale by completing a short questionnaire. The process can help communicate and share values, clarify design strengths and weaknesses and identify opportunities for improvement. The tool is designed to be used to help explore design intentions and to assess the design quality of a project as it progresses from the brief through design to construction and use.

Variants include:

- [Design quality indicator for schools](https://www.cabe.org.uk/buildings) (DQIfS)
- [housing quality indicators](https://www.cabe.org.uk/buildings) (HQI)
- [AEDET](https://www.cabe.org.uk/buildings) for healthcare buildings
- [DEEP](https://www.cabe.org.uk/buildings) for defence projects.
Building Research Establishment Environmental Assessment Method (BREEAM)

**BREEAM** is an established method for assessing sustainability. The BREEAM tool evaluates designs in relation to their environmentally responsible features. It looks at:

- fuel economy
- waste and pollution
- environmental diversity
- transport.

BREEAM has also been adapted for different building types such as healthcare, justice buildings and other sectors.

**Access audit**

An access audit can be used at the design stage to review drawings. It establishes whether accessibility for people with a disability – hearing, sight, intellectual or physical – has been suitably considered and suitably resolved.

**Building for Life**

**Building for Life** is aimed at housing and neighbourhoods, and is a manageable set of searching questions that can point towards whether a project is of good quality.

**When do you monitor design quality?**

You need to monitor quality throughout your project, developing and testing the design approach:

- at inception to inform the strategic approach
- during brief development to define and set out quality standards, and inform the content of the brief
- during design development to evaluate how well a design performs, and inform refinement
- before applying for planning consent, to fine-tune and take stock before further detail is embarked upon
- before detailed design, to inform your detailed brief
- in use to inform fine-tuning or successive phases or projects.

Often tools dovetail with each other. For example BREEAM, the assessment tool for sustainability, should be used from the beginning of a project. Most assessment tools can be used at briefing stage. You can use assessment processes to develop discussions with your design team early on, and go on to involve different users to inform detailed development.

It is important to get the timing right – assessments of design should take place while adjustments can still be made, for example at the design and detailed design stages. The timetable for assessment should be agreed with your design team and integrated in their programme. See also sign-off key stages.

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How to monitor design quality

You will need to decide on your priorities, benchmark your project, identify the right design assessment tools, plan your monitoring and consider getting an external evaluation of your design.

1. Decide on your priorities

To do this at a building scale, you need to understand how design quality has an impact across the broad issues, the personal scale and the detail, in order to understand how to invest wisely. After all, good design does not mean big budget.

2. Benchmark your project

You need to compare your project to what others have achieved in similar circumstances so you can put design decisions in context. You and your team need to develop a shared understanding of the range of qualities you expect to see. CABE’s best practice case study library is a good place to start, but you should also talk to other clients and visit projects that are similar in scale to yours.

3. Identify the right design assessment tools

Identify early on which design assessment tools you wish to use.

Often tools dovetail with each other. For example, BREEAM, the assessment tool for sustainability, should be used from the beginning of a project. Most other assessment tools can be used at briefing stage. You can use assessment processes to develop discussions with your design team early on, and go on to involve different users to inform detailed development.

Avoid seeing design assessment tools as hoops to jump through. They work best when used early on and the solutions to a project are still open.

4. Don’t approach monitoring as a tick-box exercise

Avoid the risk of seeing design assessment tools as hoops to jump through. They work best when used early on, when the solutions to a project are still open. Although they can seem complex, approach them as a catalyst for discussion rather than like passing a driving theory test. Developing a design is a creative process.

5. Plan how you will monitor/assess design at different stages

Many of the available tools are useful at various stages of a project. They are intended to be checked back on as the project progresses.

Agree the timetable for assessment with your design team and integrate it into their programme.

6. Consider an external evaluation of your design

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As well as internal assessment, you could consider an external evaluation of your design to get some impartial feedback.

For example, you could arrange for your design to be reviewed by an expert multi-disciplinary design review panel. At design review a project is presented by the client, design team and local authority to an expert multi-disciplinary panel. The panel discusses the project with those present and then provides constructive comments in writing. Undertaking this kind of review is most productive before you submit your design for planning approval.

7. Commit resources to evaluate quality

Evaluating the building in use to see how it performs against your brief can be useful for your organisation and other clients. Many buildings don’t get used in the way they were intended, which can be very wasteful of resources.

See preparing for use and evaluating and improving for an exploration of the role of assessment at this stage.
Integrating fixtures, fittings and equipment

Some of the technical components of buildings are so integral to the building design that they can make or break the overall finished result, even though they may not at first seem to have anything to do with the look or feel of the building.

For example, the spatial requirements for trunking and service conduits are must be integrated early on. If not, the resulting confusion to your programme and to the construction process could have an undesired effect and spoil your finished design.

Issues related to fixtures, fittings and equipment, and information and communications technology (ICT) may not be part of the detailed brief. But they must not be overlooked as they have implications for cost, space, servicing, safety and acoustics.

Fixtures, fittings and equipment come in three categories:

1. contractor supply and fix
2. client supply (or find and buy) and contractor fix
3. client supply and fix.

Including fixtures, fittings and equipment in the contract will incur fees and contractor’s mark-up, and may deny you the ability to write off costs against tax. However, if you organise the supply or fix yourself, there are potential risks of you delaying completion, as decisions on fixtures, fittings and equipment will invariably influence the completion of the project.

These risks can, to an extent, be mitigated by the way a project is structured, but you need advice at an early stage on the procurement and implications on the timetable.

Remember that completion of construction and the installation of specialist equipment may not all take place at the same time. Fit-out generally cannot start until construction is complete. Even in a building tailored to the organisation, the fit-out – buying and laying out furniture, equipment, accessories, art and plants – is a separate stage.

Planning for information technology

Planning for ICT is vital if the project’s cost, programme and appearance are to be maintained. It is common for the contractor to provide the separate cable routes in line with a consultant’s design. However, unless the ICT installation contract has been fully agreed, there is a risk that the installers will wish to vary the type of cables and their routes to suit the equipment you have specified.

This can impact on the overall design, at worst, with cable routes being visible and not hidden within the walls. Remedial work will take more time, and this could impact on your programme as well.
How do I integrate fixtures, fittings and equipment?

1. Understand how your procurement route deals with fixtures, fittings and equipment
2. Understand at what stages you will need to sign-off fixtures, fittings and equipment
3. Start selecting your equipment early, so any technical requirements are integrated into the design
4. State unusual requirements early in the design process, so they can be budgeted for and taken into account during design to avoid creating impractical conditions. For example, where large equipment needs to be installed, a suitable opening needs to be given for it to be integrated into the design.
5. Appoint people with detailed knowledge of how the building will be used to act as 'champions' for the various functions or user groups during fit-out stage
6. Make an external team responsible for collecting, checking and passing on this information during fit-out stage. Existing staff may be an obvious choice, but they may not have time.