Simon Dodsworth

The Fundamentals
of Interior Design

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The design process in action

Analysis

In the following description of the major parts of the design process, the comments made earlier about its flexibility should be borne in mind; any or all of the actions described here could be adapted to suit individual projects. It will also become clear that the job of a designer actually involves a great deal of general administration work in addition to the design element of a project. When working as part of a large practice, this may not be especially apparent, as job roles will probably be tightly defined. In smaller companies, however, the designer may find themselves deeply involved in all aspects of the process.

Analysis is relevant at two related but distinct parts of the project cycle: In the very earliest stages, before in-depth design work takes place, the designer will need to assess the scale and complexity of the project work to be undertaken. This will allow preliminary estimates to be made of the time and resources needed to complete the project, and these will in turn provide a foundation upon which the designer can base a fee proposal. Part of the work at this stage will involve determining the scope of the project and the likely format and content of the presentation, as this will control, to a large degree, the amount of drawings and visuals that are prepared, all of which take time that will need to be charged to the client.

Following this and once the client has agreed to the proposed design work being undertaken to reach the first presentation stage, the designer can take an in-depth brief from the client. Initial examination of the brief, allied to a general understanding of the project, will give the designer a starting point for further research. All of this work will lead to the second tranche of analysis, in which the designer is aiming to edit, distil and ultimately make sense of all the information that has been gathered. Some of the information will relate to the practical aspects of the brief, some to the aesthetic, some of which could be contradictory in nature. Over time, the designer will become used to setting priorities and reaching a comfortable compromise with regard to conflicting information. It is very rare to find a project that does not need some element of compromise to succeed, but there is never one single way to deal with it. Each project must be looked at on its own merits, and decisions reached that reflect the unique nature of that project.

Once analysis is complete, conclusions regarding style and content of the project can be summarised by creating a concept. This will then be used to generate ideas and drive the project. Different methods of analysis and concept styles are looked at in greater detail in the next chapter.

By following a structure design process and by carefully considering the needs of their client, Project Orange have created a calm and reflective interior for this house in Suffolk, England.

Subsection opener

All chapters consists of a number of subsections. Each subsection opens with a brief introductory text in bold.

Body copy

The body copy is broken down by a number of headings.

Image captions

Each image is displayed with an accompanying caption to supply contextual information and help connect the visuals with those concepts discussed in the body copy.

Chapter opener

Each chapter opens with a brief introduction.

1   **The design process**

'The design process' is a term that covers a set of operations which, when carefully undertaken by the designer, result in a thoroughly considered and well-crafted design solution that meets the needs of the client. The process is not exclusive to interior design and, in one form or another, applies to all fields of design.

Design might be seen as a largely linear activity, with a start point (at which the client makes first contact with the designer), and an end point, when the project has been implemented (that is, constructed or built). However, the reality is that within the process many of the individual tasks are interrelated and highly dependent upon one another, so changes to one element of a design solution will often require that earlier parts of the process are revisited and revised as appropriate.

You should try to see the design process as a malleable one where the different tasks are adaptable to the unique nature of each project. The design process is not a standard 'one size fits all' solution, and you will need to develop your understanding of it so that you can see how it might be used to meet the needs of individual projects that you work on.

The design process | Understanding the project | Understanding the space | Understanding building structure | Organizing the space | The human context | Sustainable design | Communicating design

Evaluation

It is healthy for a designer to constantly question the chain of decisions that have been taken to that point, and to maintain a self critical attitude towards everything throughout the life of a project. Before reaching the implementation stage, revising work that has already been done can be a healthy way to work.

From the client's point of view, the design process is usually considered complete after the implementation stage, but the designer should also evaluate the project in an effort to learn from it. A time of reflection will be valuable immediately after the design has been delivered, as lessons learned during the process will still be fresh in the mind, and it is good practice to re-visit the project after an appropriate period has elapsed (say six months or a year), as lessons which become apparent only after a space has been occupied and is functional can be learned. While it may or may not be possible to rectify any shortcomings that are identified on an individual project at this stage, the knowledge acquired can be fed into subsequent projects.

Whatever the extent of the work undertaken to try to visualise the finished outcome of the project during the design development, there will be some instances where you can only properly judge some of your aesthetic decisions as the project is implemented. Although it may be possible to make changes at this stage, there will almost certainly be cost implications. It may be more appropriate to simply learn the lesson for next time, but take no action on site.

Thinking points

Thinking points present in-depth views and practical tips relating to the key concepts of the chapters of consideration. They are set in black boxes.

▌ Thinking point
The importance of drawing

Drawing is an activity that you may well not have taken part in for some time before coming to design training. It can, therefore, by very intimidating, but you need to understand that you don't need to be an accomplished artist in order to be a good designer. What you do need is a willingness to commit ideas to paper and to not be afraid of what others might think of your drawing abilities. Experienced designers do not judge the quality of the sketch, they judge the idea that the sketch is expressing. Formal, accurate, technical drawings (plans, elevations, sections, for example) are created on the drawing board or on the computer, and the techniques for producing them are skills that most people can learn. Sketches, on the other hand, are freehand drawings that can be rough, immediate and expensive, or more carefully executed. However they are arrived at, sketches exist to quickly capture and communicate ideas; they are not necessarily meant to be beautiful representational drawings.

This sketchbook shows rough ideas that have been captured very quickly. The sketchbook has been used as a notebook, and the ideas shown will be looked at and further developed later on. Most designers will keep at least one sketchbook close at hand almost all the time so that they can easily record ideas that occur to them.

This spontaneous but considered freehand perspective drawing was created in the presence of the client in order to expand upon ideas shown in formal presentation drawings. These types of sketches are invaluable for answering questions that clients pose during presentation.

A rendered plan showing a bedroom and bathroom configuration at an hotel in St. Petersburg, Russia. Drawings such as this will help the designer to develop the concept into a workable design solution and will form the basis of the presentation to the client, but further drawings will have to be made to aid the implementation.

The design process | Understanding the project | Understanding the space | Understanding building structure | Organizing the space | The human context | Sustainable design | Communicating design | The client | The briefing | Design analysis | Building and site research

Case studies

Case studies give detailed, step-by-step explanations of real-life design processes. They are set in yellow boxes.

▌ Case study
Presenting ideas

Design student Daniela Le Cara has put forward proposals for the redesign of a gallery at the V&A Museum in London. She has used a concept based on the idea of 'movement, tunnels and routes' to help develop her design. It has been crystallised around the occurrence in some parts of the London Underground of railways that partially intersect, giving people on station platforms incomplete glimpses of other railways, and the people using them. This idea was one that intrigued and fascinated Daniela, and it proved strong enough to give rise to the concept. In turn, the concept has informed, for example, the structure, traffic flows, decorative scheme and material choices, of the finished museum scheme. Daniela has generated sketches, collages, scale models and formal drawings to develop, refine and resolve her ideas. These have all been used to produce material that has helped to present the conceptual design of the space to the audience.

Note that when presenting a project, it is not always necessary to produce highly sophisticated visual material. Simple techniques such as sketching, collage and photocopier work leave their own traces of rawness on the images which are not 'perfect', yet this hand-crafted look is often very helpful in presentations, simply because it looks natural and real. It is very engaging and appealing, and there is something about these qualities that encourages discussion with the client. In contrast, overly finished visuals can appear somewhat dictatorial, as if you are not allowing the client any room for manoeuvre within your proposals, which the client could negatively interpret.

You don't need to be a great artist to be a designer, but you do need to be confident about communicating your ideas visually, whatever technique you use. This will come as you practice the different techniques, and this confidence in your presentation work will, in turn, give clients confidence in your abilities as a designer.

For the title sequence of her presentation document, Daniela used two pages of tracing paper over a graphic copy of a photograph. The three pages layered interconnections, movement and excitement, engaging the reader from the start.

A quick sketch overlaid with trace is a simple way to explain the concept.

As part of the analysis of the space, photo collages were created to help understanding of the gallery and its approaches.

Photo research was used in combination with numerous rough sketches to define and develop design details. Sketches allow ideas to be generated quickly and visualised so that they can be easily evaluated.

Sketch-style scale models were built out of card, which were then photographed. Lighting effects were replicated during the photography. Subsequently, the images were manipulated to include cut-out human figures. These add life to the images and give an instant indication of scale. Some aspects of the decorative scheme were also added to the images.

Accurate scale models were produced in the initial stages of the project, they would have helped to identify and resolve issues connected with the design. Then the drawings were finished to presentation standard. Colour and the human figure are added to make them easier to read. Representation of the human figure is an excellent aid to understanding drawings, by covering up the figures to see what effect it has on your interpretation of them.

Introduction

To be creative is part of the human psyche. It is one of those traits that set us apart from other animal species, and we have practised it for millennia. Even when our prime need was to find food and shelter, we felt a desire to leave our mark on the environments that we inhabited. Whether this was to satisfy some deep spiritual calling or a method of passing on vital knowledge to fellow group members, or whether it was simply a way for an individual to satisfy an urge to leave his mark for future generations, we will never know. For just as long, people have turned inquisitive minds to ways of solving problems and dealing with the issues that have faced them in the struggle to survive: problems such as how to work more efficiently, how to live more comfortably and how to be safe from danger.

Today, these primitive and fundamental indicators of human nature may be expressed in more sophisticated and developed ways, but the primal simplicity of our human desire to make a 'better' and more comfortable world for ourselves is evidenced through, amongst other things, how we organise the spaces that we inhabit, and the aesthetic that we make for them.

As we have become more affluent and blessed with more leisure time, style has become more important to us and is something with which we want to imbue our homes. But 'style' is a very personal notion, so why should anyone look to employ someone else, an interior designer, to tell them what is right? Why, for that matter, should you as a designer presume to impose your ideas upon a space that isn't your own? The answer is this; interior design is about so much more than 'what looks right'. It is about taking a holistic view of the way that individuals use and enjoy the spaces that they inhabit. It is about finding and creating a cohesive answer to a set of problems and dressing the solution so as to unify and strengthen our experience of the space. Many people understand this and that they do not have the necessary skills to tackle the job themselves. And so there is the need for professional interior designers.

Good interior design adds a new dimension to a space. It can increase our efficiency in the way we go about our daily lives and it adds depth, understanding and meaning to the built environment. Thoughtful and well-crafted design makes a space easier to understand and experiencing such a space lifts the spirit, too. It is, therefore, not just about the aesthetic; it is a practical and philosophical discipline. Beautiful spaces betray a logical and rational questioning of the status quo and can be an honest attempt to find new and exciting ways to lead our lives.

There is often some confusion between the terms 'interior architecture', 'interior design' and 'interior decoration'. What is the distinction between the different professions? In truth, the distinctions are not absolute. Where boundaries are drawn depends upon several factors. In a professional sense, it may well come down to a matter of which country the designer is working in (or perhaps more properly, which regulatory system the designer is working under). Though not definitive, the explanations below give an indication of the different roles and responsibilities of those whose work involves the design of habitable space.

Architects use planes (walls, floors, ceilings) to define the volumes (spaces) that combine to make up a building. They are trained to design structures from scratch. They will take intellectual and practical considerations into account, and the building design will be informed by its location. Some architects will limit their involvement in this, while others will also plan furniture layouts in detail and create decorative schemes.

Interior architects are generally concerned with taking existing structures and reforming them to suit new functions. They will pay a great deal of regard to the previous life of a building, and usually allow this knowledge to provide some connection between the fabric of the building and the newly created interior.

Interior decorators generally work with existing spaces that do not require physical alteration. Through the use of colour, light and surface finish, they will transform the look of a space, perhaps making it suitable to function in a different way from that for which it was originally designed, but with very little or no change to the structure of the building.

Interior designers span the ground between interior architects and interior decorators. The scope of the projects undertaken will vary from the purely decorative, to ones where a great deal of structural change is required to meet the brief. An interior designer will competently handle the space planning and creation of decorative schemes at the same time as considering major structural changes.

None of these professionals will necessarily be experts in all aspects of a project, and will call on other specialists (such as structural engineers or lighting designers) to help fully realise their ideas.

Why become an interior designer?

Being an interior designer puts you in a privileged position. You are trusted by the client and, in the case of commissions by private clients, you have intimate access to their homes and way of life. You are given freedom to create spaces that will become an everyday part of their lives. You can propose radical planning solutions that may overturn preconceptions. According to the budget, you will source and curate all the elements that make up the interior space. You can select beautiful pieces of furniture, interesting and unusual finishes, and colour schemes that together create drama, serenity, or whatever other mood the client wants for their space.

For a creative personality all of this is satisfying in itself, but the problems that the global community will face through the coming decades offer lots of opportunities to try our creativity further. Climate change and population growth are causing problems that we need to address, and the solutions are almost all to do with the way that we lead our lives. Current ways of working and living will change, and whether theses changes turn out to be sudden and dramatic or slower and more subtle, changes in lifestyle will mean that designers are required to navigate new landscapes and propose alternative routes for clients to allow them to meet their commitments as part of the new global, responsible society, whilst still maintaining a sense of wellbeing derived from their immediate surroundings.

As well as these changes, there is a growing acceptance that the current condition of public and private spaces does not facilitate their use equally by all members of society. 'Inclusive design' answers this by considering the needs of all people during the design process, that is, anyone and everyone who may have call to use the space including children, the elderly, those carrying heavy or awkward loads, and so on.

What does this book propose to do?

This book attempts to do two things: to impart knowledge that will prove useful to you as you explore and progress along your journey into design, and to try to share some of the amazing emotions and feelings – the excitement and the enjoyment of creating environments and realising spaces where the theatre of interior design connects with individuals to make their lives better and more fulfilled. The text explains essential concepts in a logical and sensible way by looking at the process of design, from first contact with a client, to presentation of the finished design work and beyond. This book introduces each aspect and leaves the way open for further advanced study.

It is the emotional, creative aspect of design that often draws people to apprentice themselves to this exciting discipline, and here the images that accompany the text are intended to inspire as well as to explain. Looking at the work of established designers is a good way to learn and to open the eyes of a new designer to the possibilities of the discipline that they have undertaken.

If budget allows, one of the real pleasures of being an interior designer is having the chance to work with artisans to create pieces such as this coffee table by Based Upon, which add a unique quality to an interior.

1 The design process

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Design might be seen as a largely linear activity, with a start point (at which the client makes first contact with the designer), and an end point, when the project has been implemented (that is, constructed or built). However, the reality is that within the process many of the individual tasks are interrelated and highly dependent upon one another, so changes to one element of a design solution will often require that earlier parts of the process are revisited and revised as appropriate.

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The design process in action

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Analysis

Analysis is relevant at two related but distinct parts of the project cycle: In the very earliest stages, before in-depth design work takes place, the designer will need to assess the scale and complexity of the project work to be undertaken. This will allow preliminary estimates to be made of the time and resources needed to complete the project, and these will in turn provide a foundation upon which the designer can base a fee proposal. Part of the work at this stage will involve determining the scope of the project and the likely format and content of the presentation, as this will control, to a large degree, the amount of drawings and visuals that are prepared, all of which take time that will need to be charged to the client.

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By following a structure design process and by carefully considering the needs of their client, Project Orange have created a calm and reflective interior for this house in Suffolk, England.

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The design process   Understanding   Understanding   Understanding   Organising   The human   Sustainable design   Communicating
the project   the space   building structures   the space   interface   design

Client

Preliminary brief
initial phone call or contact

Preliminary guide budget

Feasibility analysis
Is the job do-able?

Scope of works

Commissioning stages

Preliminary project timetable
(Gantt chart)

Fee proposal to client
includes details of work to be undertaken
and proposed charges

Client approval

Full brief

Design analysis

Concept

Sourcing

Planning

Decorative scheme

Client presentation / Sign-off

Detail design

Schedules and specifications

Detailed costings

Client approval

Implementation

This diagram represents the stages of the design
process, though each element can change
or be adapted as required by the project.
The diagram does not illustrate the relative amounts
of work required for each task; again these
will be dependent on individual circumstances.

Development

The development stage of the project is one of the most interesting for the designer. It is where the natural talents of most designers find their expressive outlet, and where the individual can really make their mark on a project. This is the stage where the needs of the client are taken and transformed into a workable, practical and aesthetic design solution. It is where ideas are generated and given life, where 'flights of fancy' are captured and turned into feasible and stunning reality. The discovery of an idea and the realisation that it can be used and made into something special is exciting, it is an experience that designers live for. It motivates and helps spur the designer on to discover more of what the project holds. Interior design is problem solving on a large and complex scale, but we are also adding the aesthetic touches, the humanising elements, that make interiors appealing and functional on an emotional level.

Development work can sometimes be hard, requiring a great deal of thought and re-working until the result is as perfect as is practicable, but the pleasure and pride that the designer experiences when it goes well are worth the effort.

How much development work needs to be undertaken depends very much upon exactly what the client requires from the designer. If the client expects to see 'concept sketches' for a project, then only minimal design work may need to be undertaken; just enough basic space planning and the development of a few decorative ideas or motifs, for example, to allow the designer to produce sketch visuals of the proposals. If, however, the client wants to see a fully resolved design solution, then a great deal of development work will be undertaken; space planning, decorative details, and bespoke items will all need to be worked on, and this will generate a much larger number of drawings and supporting work.

During this stage, many different strands of the finished design will be coming together. Space planning will be a major priority. Taking account of ergonomic needs, the designer will seek to create a balanced and effective furniture layout that meets the functional needs of the user. The designer will be sourcing furniture, finishes and fabrics which will be chosen for their aesthetic and practical fit with the concept, with space-planning constraints also informing furniture choices. As the decorative scheme begins to take shape, the collection of finishes will be refined and edited.

The design is likely to be quite fluid; changing and evolving while heading towards a fully resolved finale. Being open to change is one of the best qualities a designer can have. It is by being open and seeing where the development process leads that unique breakthroughs in the design can be made.

Whatever form ideas may take, getting them out of your head and on to paper is crucial to being able to see the issues clearly. It is not enough to try to 'think things through' and then create a drawing to record a finished idea, as almost no one is gifted enough to be able to foresee a fully resolved and articulated design. Instead, it is through the act of drawing itself that issues are identified and resolved. This is such an important point for the novice designer to grasp: drawings are not made simply to record an idea or detail that has already been formulated in the designer's mind. Instead, making drawings is a process of 'thinking on paper'. Drawing is crucial to the development of a design, an extremely powerful tool in the designer's arsenal. Sketching and hand drawing play a part in the lives of almost all designers, even those who use computers on a daily basis to turn their ideas into the drawings used for construction purposes.

Quick sketches and formal technical drawings are used in conjunction to conceive new ideas and examine their impact on the scheme. Plans are usually the first technical drawings to be made, but as soon as the first planning options are being explored, the designer should be thinking in three dimensions, so elevations, sections or perspective sketches will follow to show other aspects of the space. Drawing is an excellent way of comparing alternatives, of seeing different options side by side.
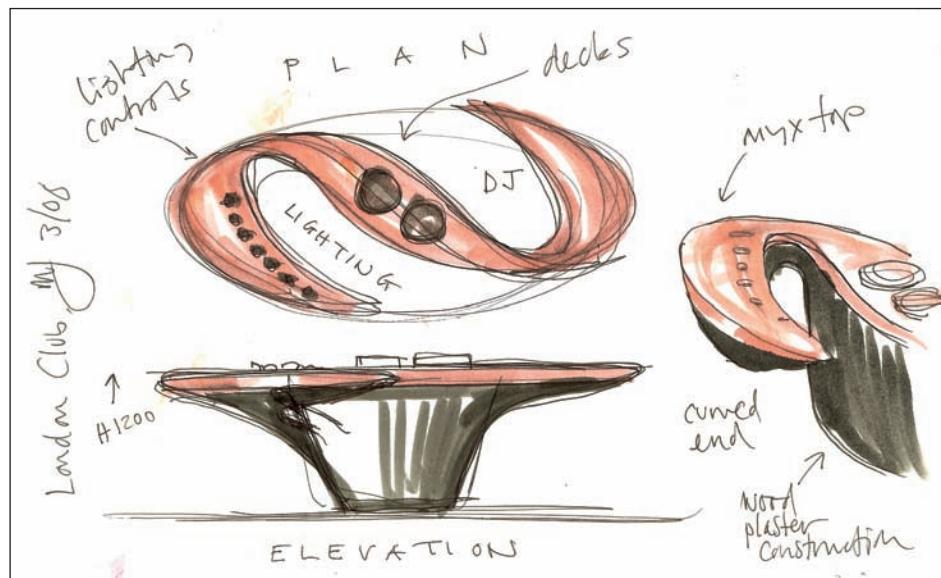
After the project has been presented to the client, and the client has approved the work to date, further drawing will be needed to progress the project. These drawings, done in more detail than those for the presentation, will be sent out to tender to allow accurate quotes to be given by potential contractors. They will highlight what work needs to be done to the space and, where necessary, will show constructional details, thus ensuring that the designer's vision for the project is realised by the contractors as intended.

It should be said that, while the designer is always aiming to provide the best solution possible, that solution is almost certainly going to include compromises. At the very least, there will be competing, if not conflicting, needs and wants in almost every design brief. It is the job of the designer to make judgements and to prioritise. In some situations, it will be the practical that is the most appropriate, in others the aesthetic will win. You will be able to make these judgements having referred to your design analysis and concept.

Two quick but considered perspective sketches
by Mark Humphrey that have been drawn
to help visualise different aspects of an interior.

Another sketch by Mark Humphrey that attempts
to rationalise his ideas for a DJ booth at a London
club. This simple sketch embodies the essence
of the concept, and will be developed further
through accurate working drawings that will provide
a fabricator with all the information needed
to create the piece for real.

Implementation

After all the design work has been agreed and signed off by the client, implementation can begin. Once contractors have been engaged to carry out the work, the involvement of the designer could be minimal, with a number of site visits to check that work is being accomplished as intended. The designer could, on the other hand, be involved in a very hands-on supervisory role.

In some countries, depending on the depth of training that the designer has undertaken, legislation may limit their involvement with the implementation process. The term 'project management' is sometimes restricted to those who have undertaken specific training in that subject, so the designer may find legal limitations on what they are able to contribute to this part of the process.

Even if this is the case, it is likely that the designer's input will be required to resolve some of the issues that are bound to arise as the implementation progresses. A good relationship with contractors and others involved in the project will be a great help, and this can in part be achieved by proving that you understand some of the problems that may arise during the implementation phase. Knowledge of building practice, materials and their limitations, and local building regulations, will all give the designer credibility with those in the building trade. Neat, legible and complete drawings are vital in communicating with the construction team. As part of the development stage, you will have tried to anticipate all the drawings that will be required for the various trades involved with the project to accurately interpret your instructions. This may well be a much greater number of drawings than was needed to communicate your design proposals to the client. Even at the implementation stage it may be necessary to create new drawings to deal with some of the unexpected and unforeseen situations that arise.

Long-term professional relationships with tradespeople are often forged by designers, with the same contractors being used time and time again for their projects. The trust that is built up in this way can be very helpful to the easy running of the project, allowing for a more efficient workflow because of the familiarity that exists with the designer's ways of working. Good workmen will trust and respect the designer's judgement, even if this means working outside of their experience, but this trust can take time to mature. If contractors are not known to the designer, then it is especially important that the designer maintains a professional attitude at all times. All drawings must be thorough and complete. Decisions made and changes agreed need to be fully documented and recorded, as disagreements could be costly and cause friction between the parties involved.

During the construction phase, the implications of some of the decisions made by the designer will become apparent. A new extension to this property to house the kitchen requires the demolition of existing walls and the introduction of extra support in the form of steel joists; a relatively easy idea to propose, but quite daunting to see put into practice.

Evaluation

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|||| **Thinking point**

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A rendered plan showing a bedroom and bathroom configuration at an hotel in St. Petersburg, Russia. Drawings such as this will help the designer to develop the concept into a workable design solution and will form the basis of the presentation to the client, but further drawings will have to be made to aid the implementation.

Professional practice

What makes a good designer?

'Professional practice' is a term that covers the personal qualities and business procedures of the individual designer, and also the framework of regulation that the designer is subject to while working. The latter falls outside the scope of this book, as the laws that govern design work vary considerably from country to country, and are frequently subject to change. Some basic and universal business practices are, however, worth looking at.

Designers are creative people, and being organised does not always come naturally to a creative personality. It is, however, a trait that all designers would do well to cultivate, as there is so much more to the business of design than just designing. Being organised is probably the most important facet of a professional attitude, though not the only one. For those who get involved in the full range of tasks associated with the day-to-day operation of a design practice, it could be that they will spend no more than 20 per cent of their time actively pursuing the development of a design. The other 80 per cent can easily be taken up by the mundane side of running a business: administration, filing, letter writing, travelling and so on.

Allied to good organisation skills is good time management. Because interior design is a subject that it is easy to be passionate about, it is also one where it is easy to spend a disproportionate amount of time on the design work, to the detriment of other tasks that need to be undertaken if a project is to be completed successfully. To help with this, one of the first things to be done on a project is to create a project plan that shows the tasks that need to be addressed in order to successfully complete the project. Probably the most useful way of visualising the project plan is in the form of a Gantt chart; a horizontal bar chart that illustrates a project schedule. Strictly speaking, a true Gantt chart shows the outcomes of a project, and not the actions that will be undertaken to reach those outcomes, but for most designers this distinction is academic, and can be ignored. Software, including free open-source programs, are available to help produce project plans.
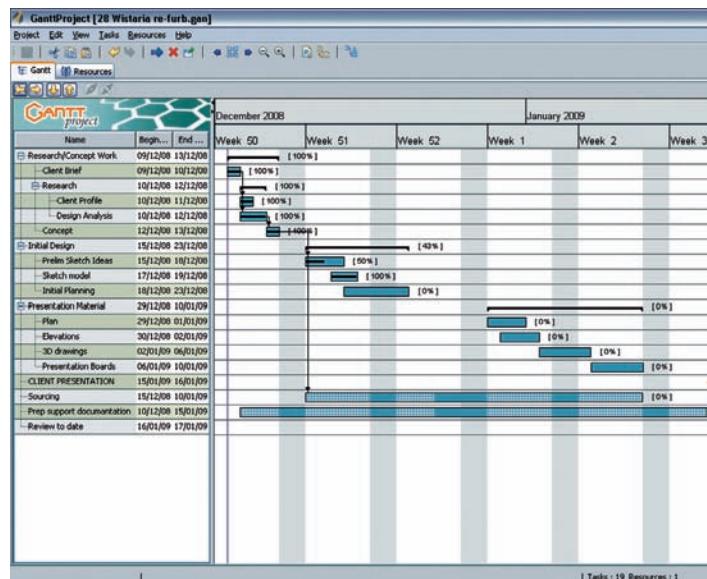
How designers should charge for their services is one of the questions that new designers are usually anxious about. Over time, three main models for charging (with many variations on them) have appeared and can be summarised as:

– Charging a percentage of the overall project value.

– Charging only for items supplied by the designer (such as furniture) with a mark-up fee.

– Charging a design fee based on an assessment or projection of hours worked on the project.

Arguably the most appropriate method of charging is that which sees the designer charging a design fee. This means that the client can see what is being paid for directly, without fees being 'hidden' in other charges, as is the case when a mark-up is added to goods supplied. It also means that payment is made within a reasonable amount of time of the work being done, and that financial commitments on the client are kept to a minimum as charges for each stage of the project are agreed before work is undertaken. However the designer decides to charge, an open and transparent system will be to the benefit of all.

While it is helpful if the relationship between designer and client is a friendly one, it is important that there is a written contract or form of appointment between both parties for the legal protection of both sides. This will define the type of services provided and their scope, the fee structure, dispute resolution, copyright issues, and what is expected of both designer and client. Trade associations in many countries will have standard documents that can be used in these cases, but even if this is not so, contracts can be drawn up with the assistance of a professional that will protect the interests of all concerned.

Designers should realise that they are not alone when undertaking a project. Other professionals can be brought in as required to add their expertise to the project. Structural engineers, surveyors, quantity surveyors and project managers are examples of such professionals, and they can all help make a project feasible and deliverable to the client. The interior designer may still be the prime contact between client and project if they were approached first by the client, with each of the others reporting to the designer.

This project timetable is presented in the form of a Gantt chart and shows the key stages of the life of a project. Gantt charts are a very good way of showing the various tasks or stages, and how long each will last, though they cannot show the relative amount of work required to complete each stage.

2 Understanding the project

The first stages of a project are the foundation on which the whole design process will either stand or fall; investing adequate time at this stage is crucial if the project is to have every chance of success. Spending time to make sure that each aspect of the project is properly identified will deepen your understanding of the task ahead, and will open up new avenues for exploration as the design evolves.

Teasing out information from a brief can be a long process and isn't always fulfilling in itself, but it allows you to research and formulate a concept, and strong concepts (key ideas) are what the most successful projects have at their heart.

There are several steps to achieving your goal of understanding the project, from meeting the client and taking a brief from them, to developing a concept. Each step is looked at in more detail in this chapter.

The client

Clients can be anyone from anywhere. A client might just as easily be a company or organisation as an individual. However, as clients, they all have a common need for the services of an interior designer, though the level of understanding of these needs is likely to vary greatly between them.

For some, the decision to engage a professional designer will have been arrived at after a careful appraisal of their circumstances. For others it will be a vague idea that there is likely to be someone (the designer) who can provide better answers to their problem than they would be able to do themselves. Some clients may believe that aesthetics are the main issue and the practical side of their needs may not have featured in their decision to call in the designer at all. For others, practicalities may be the prime consideration, with decorative concerns a secondary issue.

It is for these reasons, and many others, that the designer needs to be able to communicate on many levels with lots of different personality types. From the forthright to the timid, clients need to be understood, treated with respect and made to understand that they are a key element of the design process.

Because you will often be trying to connect with a client on an emotional level, establishing a good rapport is a must. In fact, it is sometimes a more important part of building a good client/designer relationship than being able to provide an extensive curriculum vitae.

Client profile

The client profile is an attempt to understand better who the client is and how they live or work. It is a general overview and while in itself it may not relate directly to the brief that the client has given, it will provide insights that will help you as you develop your design.

In a residential project, the client profile can help you to understand how the space might be used on a daily basis from first thing in the morning until last thing at night, and it may also give some clues as to style preferences of the client. An understanding of the daily routine can be one of the most vital parts of producing a design that works for the client.

For commercial projects, understanding the work practices of the organisation that will ultimately occupy the space is essential. This is another opportunity to look closely at the status quo and determine if the existing work patterns make best use of the space. You may find that they do, or you may be able to challenge these and propose new and better ways of working. Commercial clients often employ designers not just to create comfortable working environments, but as 'agents of change' when they know that a new direction will benefit their organisation.

IIII Case study
The client brief

Gabi and Antoni are, by their own admission, 'style conscious', and will happily spend money on 'quality' items. They like their home to reflect their appreciation of good design, without being 'slaves to fashion'. Their main enjoyment is their family and they enjoy typical social activities as a family unit: watching films, eating in or out, and walking.

They spend as much time as possible with their boys, Stefan (11) and Erik (9). They consider that the family is important, and will all gather together for meals whenever work commitments allow (either Gabi or Antoni will always be present with their boys for breakfast and their evening meal, one or the other of them taking the boys to/from school). Meals are usually casual, but are always at either the kitchen table or in the dining room. The boys are allowed to spend time in their bedrooms, but encouraged to spend as much time with other family members; they do not have televisions or computers in their rooms, but can access the family computer (currently a desktop PC in the study).

Gabi

Gabi is a business analyst for a major airline. She works part time; Tuesday to Friday 9.45am to 2.30pm at her office, and at other times at home, during the day or in the late evening, always with a laptop and wi-fi Internet connection. When working at home she requires space for large documents such as hard copies of spreadsheets.

Gabi tends to socialise with friends outside the family home, but occasionally entertains small numbers of friends at home.

Antoni

Antoni is a software solutions salesman for a company producing customised budgeting and financial reporting software. He works from home three days per week, and visits his office on the other two. His working hours are variable, depending upon need. Antoni also makes frequent business trips of one to four days to clients around Europe. When working from home he requires space for laptop, printer/scanner and access to files (2 m of shelf space).

Antoni usually socialises away from the family home with friends, but will sometimes invite one or two close friends home for drinks, especially at weekends.

Stefan

Stefan is technically minded and interested in motor sport and aviation. He plays acoustic and electric guitar, and is learning drums. Guitars are kept in his bedroom; the drum kit is in the utility room.

Erik

Erik enjoys maths and science but is fanatical about football, for which he trains every week and usually plays at the weekend. He is learning to play keyboard (his own is kept in his bedroom) and also plays the drums.

The boys participate in several activities during the week, either on their own or together, and regularly invite one or two friends home after school.

The briefing

Understanding the brief

The briefing is the first real chance that you will have to get a feel for a project. Some briefs are presented to you by the client as carefully constructed documents that fully convey the scope and detail of the project; other briefs may be little more than a casual chat over a cup of coffee.

Although a written brief is likely to contain a good deal of useful information, quantity by itself does not necessarily mean quality. In 1657, French mathematician, physicist and philosopher Blaise Pascal wrote, 'I have made this letter longer than usual, only because I have not had the time to make it shorter.' Information that is succinct and relevant is the essence of a successful briefing document. In fact, brevity is often a good thing. If the brief is focussed and clear, it will be easier for the designer to make incisive decisions and to formulate an effective design solution.

It is quite reasonable to ask the client to produce a written brief after their initial contact with you, and prior to the briefing meeting. This is a good tactic because it will force the client to carefully consider their request, and it will also make sure that they are serious about the idea of engaging an interior designer. The chance to talk about the written brief at a later date will allow both parties to sort out any problems or uncertainties that arise from it. The opportunity for mutual agreement is one that should be made the most of; time spent talking over the brief will give both sides a better understanding of each other's position and can only have a positive effect on the business relationship.

The more complete the brief, the easier your job should be, but you should remember that you may be dealing with amorphous feelings and ideas about the desired end point of a project, rather than a definitive list of needs. It's entirely possible that the 'brief' may consist of the client saying no more than, 'I just want somewhere that's a great place to come back to after a hard day's work'.

Even if the brief is vague, and whatever the practical
requirements of it may be, there will be some constraints
that you should try to establish: time and budget
available, aesthetic style, the scope of project. Constraints,
particularly heavy ones, can actually be good. Try to see
them not as limiting the project, but helping to define it.
Once you know some of these constraints, you can plan
more effectively, discarding options that fall outside
the boundaries and concentrating on those options that will
fit the brief.

Many projects, whether domestic or commercial, will have
more than one individual as the client. You should try to
make sure that, whoever has written the brief or whoever
you have spoken to in your meetings, the final brief has been
agreed by everyone who has a stake in the finished project.
You also need to take the opportunity at face-to-face
meetings to be certain that you and the client understand
each other explicitly; what does the client think of when they
say 'contemporary'? Is their understanding of the word the
same as yours? This is the time to find out.

Careful consideration has been given to the
functions required of this room in the Homewood
in Esher, England. The tubular steel leg of the bar
folds under the bar top to allow it to pivot back into
a wall that also contains storage for other items and
a pass-through hatch to the kitchen.

Design analysis

Collecting information

Having met the client and taken a brief, the detailed analysis can begin. You need to be sure that you understand all that the client needs. Sometimes this will have been explicitly stated, at other times you will have to make inferences from the information that you have.

You also have to perform a careful balancing act with the raw information. Your judgement will be crucial in deciding whether the client has actually understood their own needs. Remember that clients have engaged you because they believe that they need a professional, which implies that they are not experts, so some of the assumptions they have made may not be correct and it will be down to you to put them right. If you were to produce a finished design solution where you had managed to 'tick all the boxes' they ought to be content with the solution provided. But 'content' is not what you should be aiming for. Something extraordinary, even revolutionary, can often only be realised when you don't simply provide the client with the answer that they think they need. Special things happen when insight leads to turning an idea on its head, or doing something contrary to what the client is expecting, or doing it in a way that hasn't been done before, will answer the brief in a better, more efficient or more beautiful way. Unusual ideas will need to be thoroughly tested and resolved during the later development stages of the design process to ensure that they really do work, but it's these ideas that will yield a delighted client, not just one who is 'content'.

With the brief, some clients include practical issues that need to be addressed. Others may talk in general, abstract terms about the emotional response that they want their space to trigger. Even if the brief is vague, there will be some constraints that you can establish: time, budget, style and so on. The word 'constraint' sounds negative, but you should actively be trying to seek out the constraints present in the brief. Constraints are actually good. You should look at them as a positive force within the design analysis that will help you help you define the scope of the project. When a brief seems complex or daunting, the natural constraints can be some of the first elements that help you see the shape of the project.

This composite image has been produced as part of the research into the site. It consists of several prints that have been roughly collaged together, and in itself provides an evocative sense of the location of the project. It serves as a reference for colour and style.

||| **Thinking point**

Question the brief

What is arguably one of the most iconic buildings in the world owes its form and success to an architect who didn't hesitate to question the brief. The building is Fallingwater, by Frank Lloyd Wright at Bear Run, Pennsylvania, USA.

The client, Edgar J Kaufmann, took Wright to his site at Bear Run where he wanted to build a summer house. With broadleaf trees and rhododendron bushes all around, the site overlooked the river at a point where it cascades over a waterfall. At the same time, Kaufmann also gave Wright a survey of the site which he had commissioned some time earlier. This site survey drawing showed the river towards the northern part of the site, the waterfall, and the hillside to the south of the waterfall. It was clear from the way that the site plan had been laid out that Kaufmann expected to build his house on the hillside south of the river. From this situation, there would be a view of the waterfall to the north.

However, Wright wasn't content with this interpretation of the landscape. Instead, without any consultation with the client and using the new technology of reinforced concrete, he proposed a design for the house that integrated it completely into the site by using a cantilever construction to launch the house out over the river, above the waterfall, from the northern hillside. Wright said to Kaufmann 'I want you to live with the waterfall, not just look at it, but for it to become an integral part of your lives.' In so doing he created the building for which he is probably best known, and he gave his client an experience of and an involvement with the site far beyond what was originally anticipated.

For one of his most iconic buildings – Fallingwater in Pennsylvania, USA – Frank Lloyd Wright proposed a design that boldly questioned his client's brief. Rather than situate the house away from the waterfall, he decided to integrate it completely into the site.

Analysing information

It's easy to imagine that 'analysis' means an intellectual and academic dissection of the data from the brief. This is a factor of most analyses, but it can be a visual exercise as well as a literary one. You are, after all, going to be exploring the aesthetic side of the brief in addition to the practical, and working visually with media such as collage, sketching and photography will help you form links and develop aesthetic ideas in a free and potentially unrestricted way. This style of working is a fast and efficient way for a creative mind to access new ideas as they emerge from the brief, and it connects well with the building and site research that will be looked at later. Ultimately, if you are to produce an effective analysis, you should feel able to work in any way or medium that makes you feel comfortable. This is a skill that may need practice, but it is also a rewarding one that pays dividends.

Two well recognised techniques that can help in the process of analysis and evaluation are brainstorming and mind-mapping. Brainstorming is an activity designed to generate a large number of ideas, and is usually undertaken as a group activity, but there is no reason why the principles should not be applied to solo sessions. Four basic rules underpin the process:
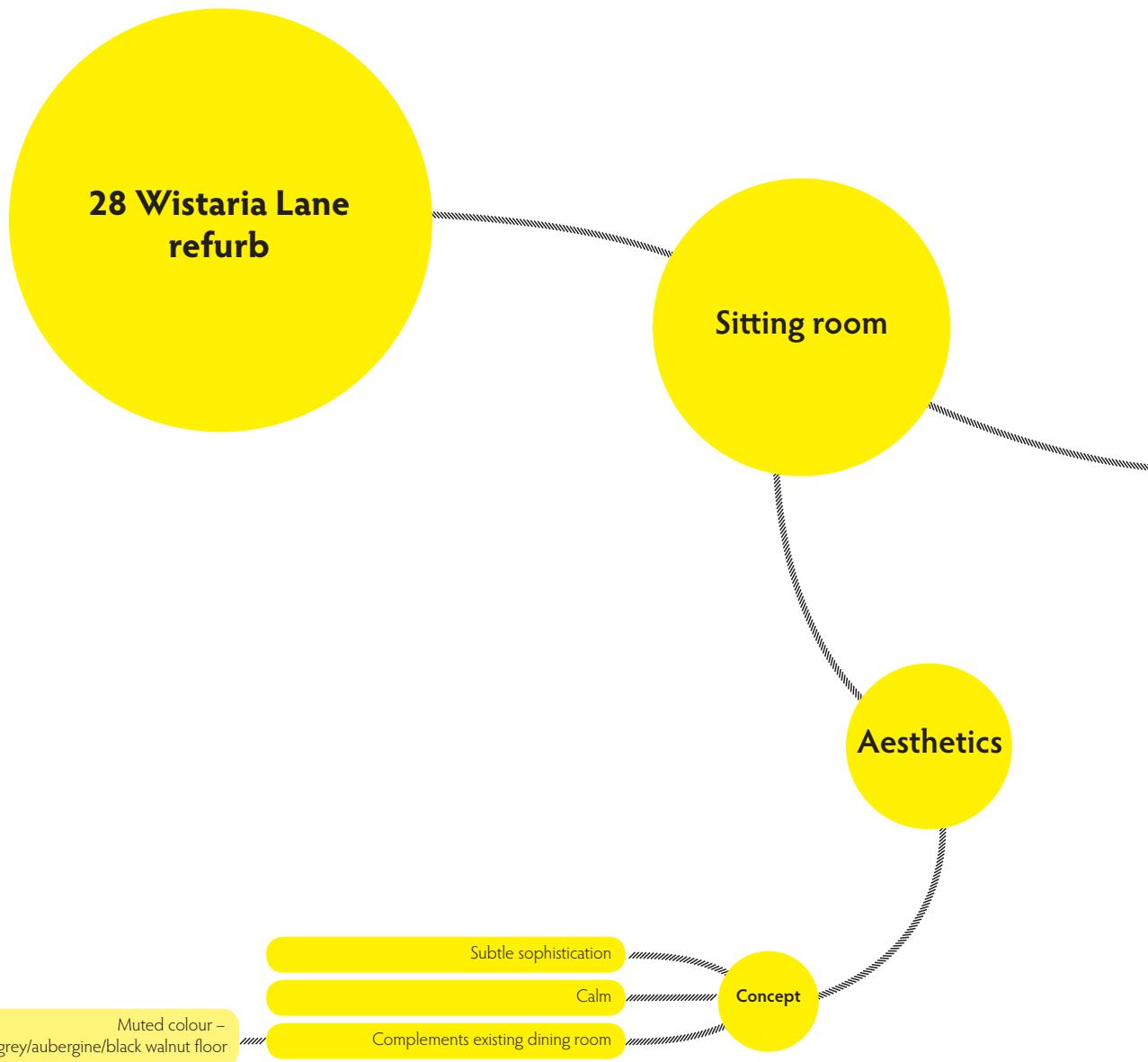
– Quantity of ideas is important; more ideas equate to a greater chance of finding an effective solution.

– Ideas are not criticised, at least not in the early stages of the exercise – that can come later when all the ideas have been generated. Ideas that might have some drawbacks could be built on to produce stronger ideas.

– Unusual, off-beat ideas are encouraged. They may suggest radical new ways of solving a problem.

– Ideas can be combined to produce better solutions.
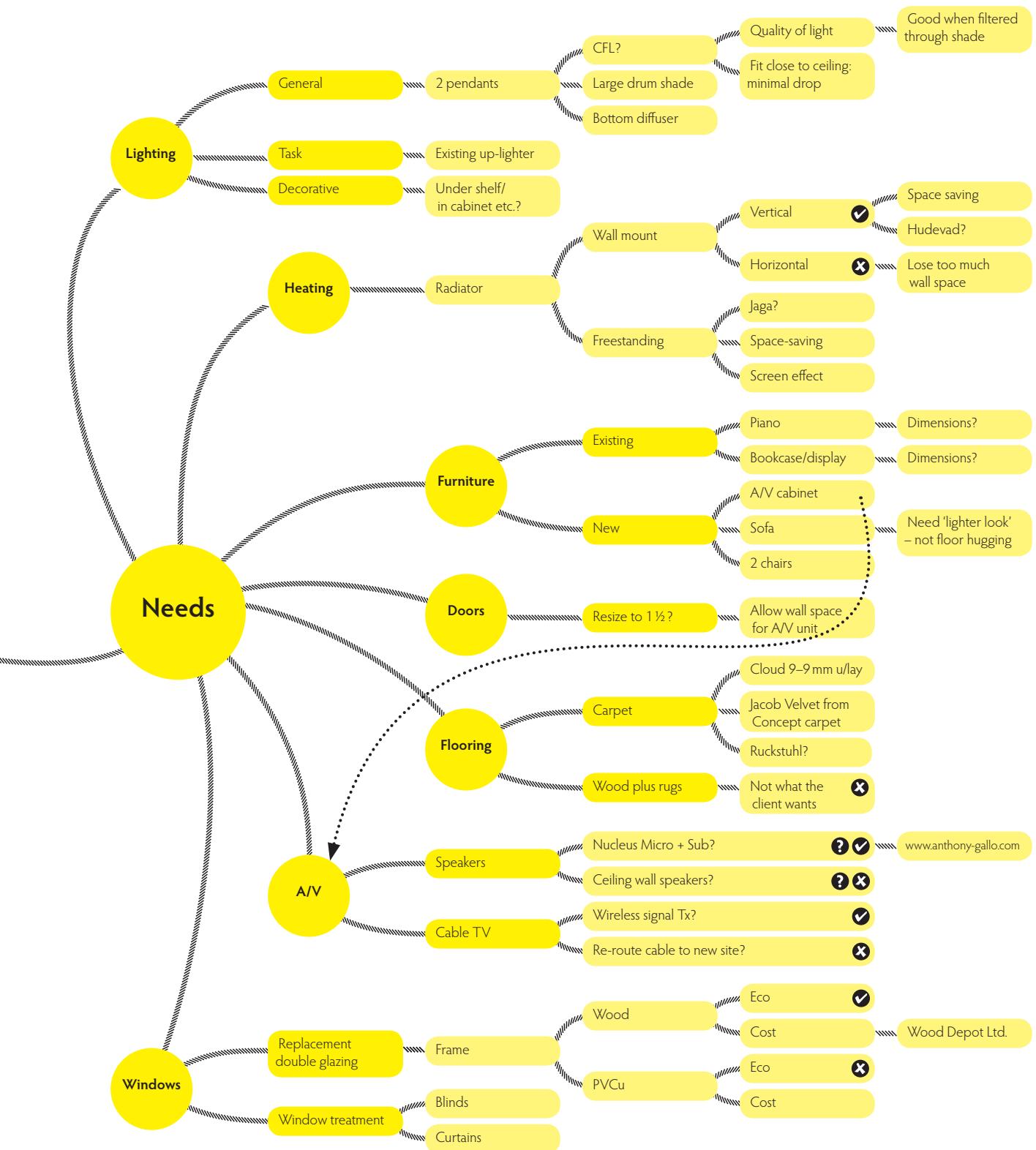
Mind maps are diagrams that are used to visually represent ideas and associations surrounding a central thought or problem. There is no formal method for organising the map, instead it grows organically and allows the designer to arrange and link the information in any way that feels right, though the different points are naturally organised into groups or areas. Pictures, doodles and colour are as much a part of a mind map as are words; imagery helps to reinforce ideas and the visual pattern created is easier for the brain to process and contemplate than a simple list, encouraging subconscious processing of the information at some later point.

Once you are satisfied that you have extracted as much information from the brief as you can, you will have a secure foundation upon which to build your project research, which is detailed in the following sections.

This mind map was created for a refurb project. The visual and non-linear format of mind maps helps the generation of new ideas and enables connections to be seen easily.

28 Wistaria Lane refurb

Sitting room

Aesthetics

Subtle sophistication

Calm

Complements existing dining room

Muted colour – grey/aubergine/black walnut floor

Concept

Needs

Lighting
- General
  - 2 pendants
    - CFL?
    - Large drum shade
      - Quality of light
        - Good when filtered through shade
      - Fit close to ceiling: minimal drop
    - Bottom diffuser
- Task
  - Existing up-lighter
- Decorative
  - Under shelf/ in cabinet etc.?

Heating
- Radiator
  - Wall mount
    - Vertical ✓
      - Space saving
      - Hudevad?
    - Horizontal ✗
      - Lose too much wall space
  - Freestanding
    - Jaga?
    - Space-saving
    - Screen effect

Furniture
- Existing
  - Piano
    - Dimensions?
  - Bookcase/display
    - Dimensions?
- New
  - A/V cabinet
  - Sofa
    - Need 'lighter look' – not floor hugging
  - 2 chairs

Doors
- Resize to 1 ½ ?
  - Allow wall space for A/V unit

Flooring
- Carpet
  - Cloud 9–9 mm u/lay
  - Jacob Velvet from Concept carpet
  - Ruckstuhl?
- Wood plus rugs
  - Not what the client wants ✗

A/V
- Speakers
  - Nucleus Micro + Sub? ❓ ✓
    - www.anthony-gallo.com
  - Ceiling wall speakers? ❓ ✗
- Cable TV
  - Wireless signal Tx? ✓
  - Re-route cable to new site? ✗

Windows
- Replacement double glazing
  - Frame
    - Wood
      - Eco ✓
      - Cost
        - Wood Depot Ltd.
    - PVCu
      - Eco ✗
      - Cost
- Window treatment
  - Blinds
  - Curtains

Building and site research

No design for a space should ignore the existing building into which it is being integrated. An understanding of what exists is fundamental to deciding what needs to be done if the space is to fit the functions that will take place there.

When you are creating interiors within newly built structures, there will be a lot of scope to define the look and feel of the interior, but where the interior is placed within an existing building the designer is obliged to understand how the previous life of the building has given the space its character. This feeling of character or history, the spirit of a place, is strengthened by the proportions of the volume and the position of existing building elements such as windows and doorways, all of which will impose a certain sense of order upon the space. The new design can respond to these factors, allowing them to inform the new design. The appreciation of a building's history may extend beyond the boundaries of the property to include the local area, the street, the village, the city, where it stands.

None of this means that your design should be a pastiche of the existing style references of the building. The best designs respect the existing building and will reference it in some way in their execution, through materials, methods of construction, craftsmanship, pattern, form and so on.

Concept development

All of the preceding research should bring you to a point where you understand the essential points that will have an impact on the design:

– What structure exists.

– What functions and activities will take place, and how these will be addressed practically (for example, what furniture is required).

– What is possible in the space (and just as importantly, what is not possible, due to time, technical or budget limitations).

– How the space functions and interacts with others around it.

– What emotional response the client wants the space to generate in the user and what aesthetic style is desired.

This is necessary, but for the design to feel considered and complete, rather than being a random collection of elements, there is a need to find a unifying idea that will hold the disparate parts of the design together. This single idea will be one that sets the stylistic tone of the design. It is this single idea that is the concept.

IIII **Case study**
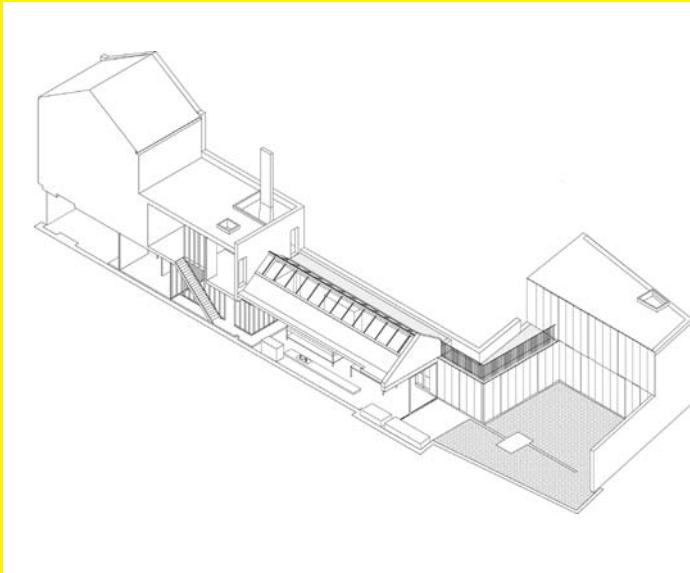
Researching the existing site

Jonathan Tuckey Design was commissioned to transform this old steel fabrication workshop in London, England, into a family home. The site was chosen because it provided a 'challenging setting' for an alternative to typical London housing.

The isometric drawing of the project shows how much of the structure remains unchanged.

External and internal additions reflect the sensibilities and aesthetic of the original use, as can be seen in this view to the exterior from the dining area of the finished project.

Very careful consideration was given to the site and former use of this disused metalworker's workshop (outlined in white here).

Researching concepts

Concepts can take many forms; they may be visual or literary and may be found or created. A concept can be embodied in a story, a photo torn from a newspaper, a collage of images, a poem, a pattern shown on a fragment of used wrapping paper, a page from a scrapbook, or indeed anything that grabs your imagination and provides an anchor, a strong and compelling idea that says everything that you need it to about the project; what it looks like, how it feels, the history that it evokes.

However it is presented, the strongest concepts often make little direct reference to the constituent parts of the project. Rather they are an abstract representation of the ideas of form, texture, colour, style and mood expressed in the brief by the client.

Concepts work by providing a reference point for the designer. All the decisions made during the development of the design that define the look or feel of the space can be checked against the concept. Does the formal, grid-like furniture layout you are contemplating work with the concept? Which furniture fabric strengthens the ideas of sophistication and elegance that the client wants? Check against the concept, and you will have your answer.

Communicating concepts

Some designers like to work in a very abstract way during the first stages of a project, allowing ideas to coalesce about a central idea. Their concept work could be generated in the form of 'mood (or concept) boards'. Others will have strong ideas from the start, and without getting into detailed planning they may confidently produce 'concept sketches' which are not intended to be definitive, but which serve to illustrate their first thoughts on how a space might work.

Clients may want to see initial concept work so that they are confident that the design will progress in a direction that they are comfortable with. However, both mood boards and sketches may be very raw, visceral and unfinished. This is exciting and liberating for the designer, but can be confusing for the client. You will need to judge the personality of the client and, if necessary, modify the work before presenting it. Careful line drawings organised into an understandable if tentative and unfinished representation of the space, perhaps with colour added to define form, can be a very evocative and ultimately persuasive tool for the designer. Concept work is not about perfection; it is about capturing and communicating the spirit and character of a space.

COLOUR
TEXTURE
Intensity ← Light Sheer
         Deep Dark

? Accent
  Ochre
  Burnt Orange

Blue Verditer
French Grey
Light French Grey
Quartz Grey
Green Umber
DH Gold Colour
Yellow Ochre

Fabrics —

(Old creamy Grey) Linen/Cotton — Bed Sheets
                  Cologne + Cotton
                  The White Company
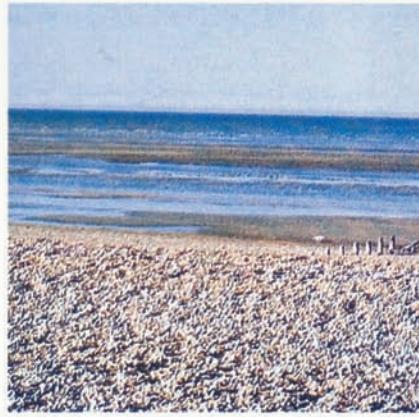
(Texture) Mohair/wool — Bed Cover/Throw

(Blues Stone Sand) Cushions
                   Upholstery

Curtains — Natural Sheer Blinds
           & light pull back

Boathouse Blue
Georgian Grey
Light Cobalt
Green Slate
Pale Walnut

Scrapbooks are a very useful way of collating research material, especially if this is visual in nature. Rough working in this way encourages free thinking and helps in the generation of design ideas during later stages of the project.
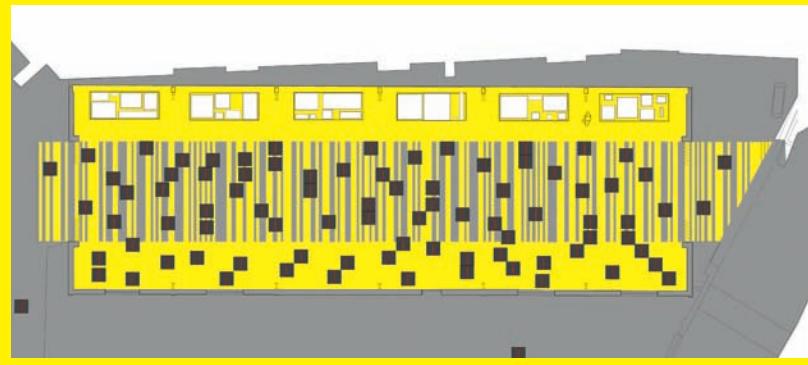
IIII Case study
Concept development

Project Orange responded at short notice to a brief for the 'Urban Interventions' exhibition (part of the London Architecture Biennale) to look at how architecture can reinvent and enhance the fabric of the city. Local architectural practices were asked to submit pieces of work, which were then displayed as a 'collection of road signs and street furniture'. Housed in a disused 1950s shed, the space was painted yellow in order to lead visitors in from the street, the idea being that they create their own 'road map' of the exhibition.

The 'bar code' floor pattern, derived from the bar code of the Biennale, makes a visual connection between the Biennale and the exhibition as it leads visitors in from the street.
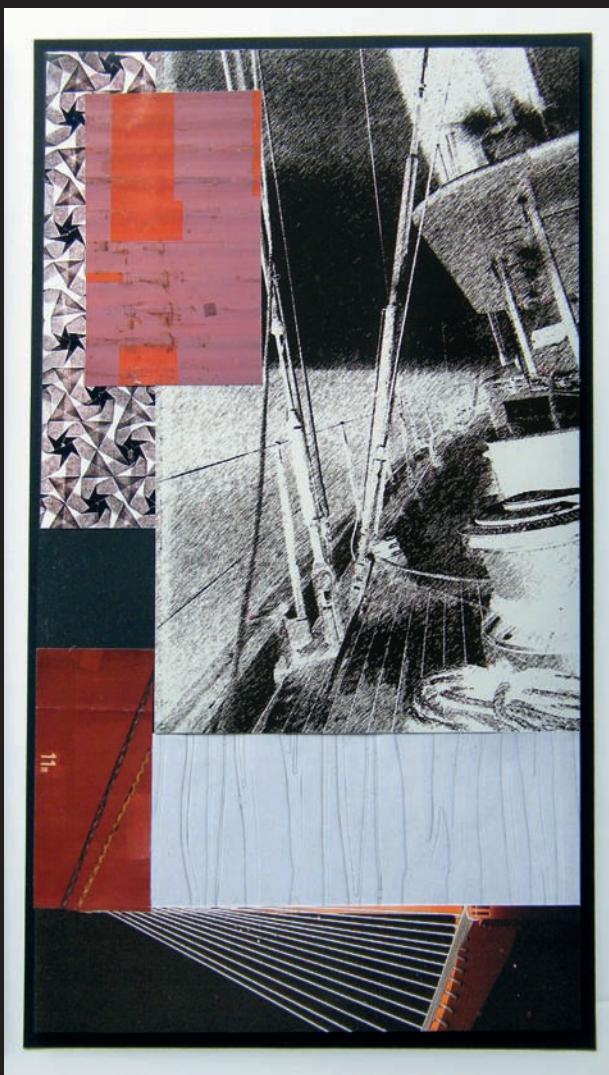
The yellow of the scheme is the same as that used in road markings outside the venue.

| | **Thinking point**

Idea searching

It is possible to create a visual concept by process rather than by inspiration. This can be helpful at times when you are under deadline pressure. The technique is to select two or three adjectives from the brief that summarise the experience the client wants from the space. This may be easier than you imagine; clients will often use words such as 'sanctuary', 'warmth', 'urban', 'natural' and the like when referring to the feelings they want your finished design to generate, particularly when dealing with a residential project. You can search for images that are strongly suggestive of these adjectives, and create a single unified collage. Generally, you will collect many images and edit them down to those that best illustrate the key adjectives you have chosen.

Finally, these few will be further edited to produce a collage in which each image tells its own story and melds with the others to create a single composition, thus reflecting the story that the client wants the space to tell.

Once you have created the concept, the images can be read to give direction for the decorative scheme. Texture, colour, form and style from the concept can all be echoed in the finishes you select, imbuing the completed scheme with the same sensory experience as the concept.

This concept collage has been created using found images and has been composed in a way that allows pattern, texture and colour to suggest a smart and sophisticated environment. It has been used to generate a scheme for a hotel bar and restaurant, situated by the River Thames, overlooking a marina.
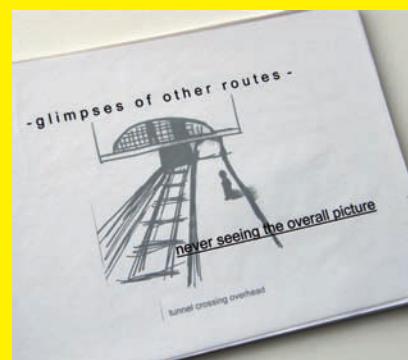
|||| **Case study**

Presenting ideas

Design student Daniela La Cava has put forward proposals for the redesign of a gallery at the V & A Museum in London. She has used a concept based on the idea of 'movement, tunnels and routes' to help develop her design. It has been crystallised around the occurrence in some parts of the London Underground of walkways that partially intersect, giving people on station platforms incomplete glimpses of other walkways, and the people using them. This idea was one that intrigued and fascinated Daniela, and it proved strong enough to give rise to the concept. In turn, the concept has informed, for example, the structure, traffic flows, decorative scheme and material choices of the finished museum scheme. Daniela has generated sketches, collages, scale models and formal drawings to develop, refine and resolve her ideas. These have all been used to produce material that has helped to present the conceptual design of the space to the audience.

Note that when presenting a project, it is not always necessary to produce highly sophisticated visual material. Simple techniques such as sketching, collage and photocopier work leave their own traces of rawness on the images which are not 'perfect', yet this hand-crafted look is often very helpful in presentations, simply because it looks natural and real. It is very engaging and appealing, and there is something about these qualities that encourages discussion with the client. In contrast, overly finished visuals can appear somewhat dictatorial, as if you are not allowing the client any room for manoeuvre within your proposals, which the client could negatively interpret.

You don't need to be a great artist to be a designer, but you do need to be confident about communicating your ideas visually, whatever technique you use. This will come as you practise the different techniques, and this confidence in your presentation work will, in turn, give clients confidence in your abilities as a designer.

A quick sketch overlaid with trace is a simple way to explain the concept.

For the title sequence of her presentation document, Daniela used two pages of tracing paper over a graphic copy of a photograph. The three pages layered interconnections, movement and excitement, engaging the reader from the start.

As part of the analysis of the space, photo collages were created to help understanding of the gallery and its approaches.

Photo research was used in combination with numerous rough sketches to define and develop design details. Sketches allow ideas to be generated quickly and visualised so that they can be easily evaluated.

Sketch-style scale models were built out of card, which were then photographed. Lighting effects were replicated during the photography. Subsequently, the images were manipulated to include cut-out human figures. These add life to the images and give an instant indication of scale. Some aspects of the decorative scheme were also added to the images.

Accurate scale drawings were produced. In the initial stages of the project, they would have helped to identify and resolve issues connected with the design. Then the drawings were finished to presentation standard. Colour and the human figure are added to make them easier to read. Representation of the human figure is an excellent aid to understanding drawings; try covering up the figures to see what effect it has on your interpretation of them.

3 Understanding the space

Spaces enclosed by building elements (floors, walls, ceilings, roofs) are the essential raw materials of interior design. Once a proper comprehension of the job has been reached through the process of brief taking and design analysis, it is necessary to understand the space. There are two different aspects of the space that are worthy of our attention; firstly, the spatial relationships that exist between the enclosed volume and the building elements that form the enclosure, and secondly, the construction of those building elements.
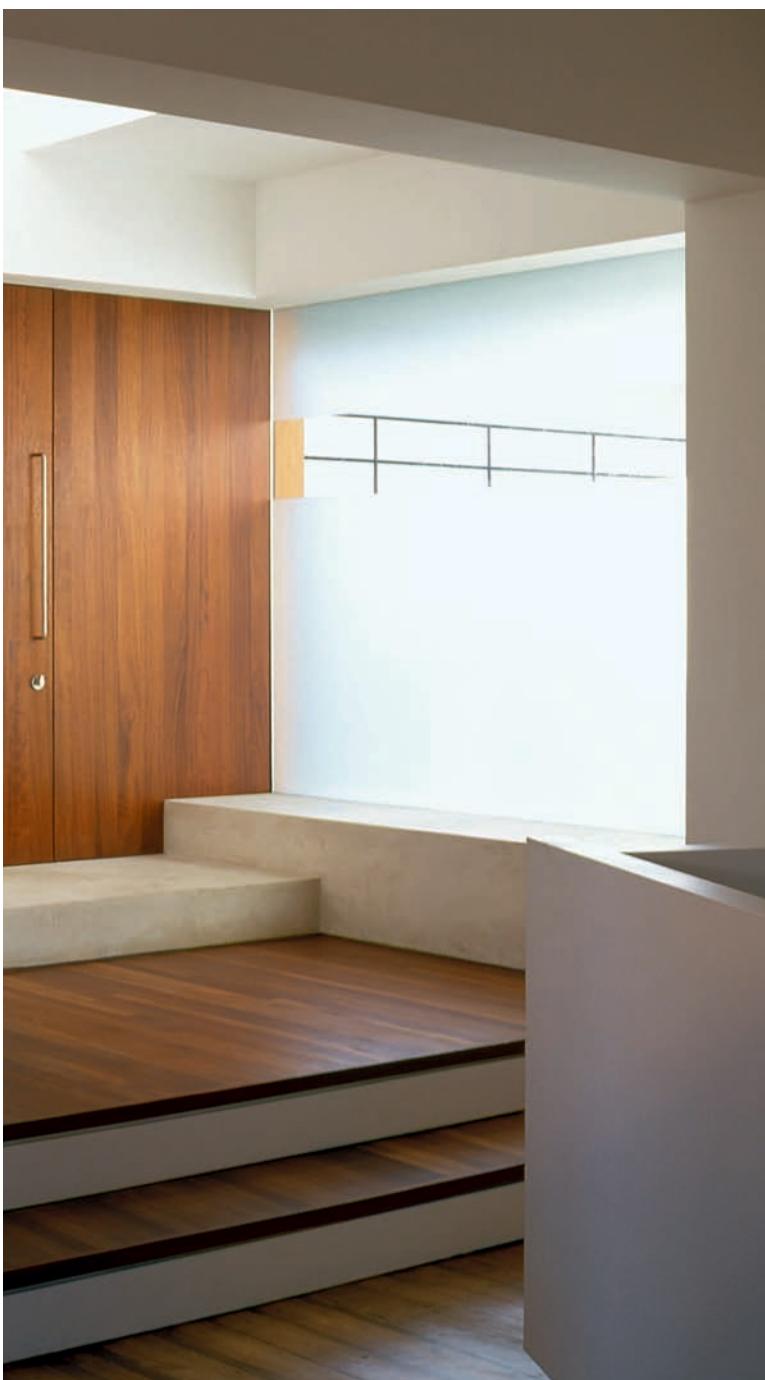
As with other parts of the design process, you should not view the job of getting to grips with the space as separate and distinct from other tasks. As your design evolves over time, so will the spatial relationships that exist within the project. They will change and develop, and it may be necessary to revisit and revise your understanding of how they work.

This chapter looks at how you can begin to read spaces through the use of drawings and models, and also at the wider use of drawing in the design process.

Understanding spatial relationships

Even when you are fortunate enough to have experienced a project space first hand, it is unlikely that you will have had enough time to get to know it intimately. When working in a studio environment with no physical experience of the space, you need a methodology that allows you to connect in an intellectual sense with the space. Universally, designers draw and create models to give them this experience of a building.

Before embarking on design work, the designer must fully understand how the spaces 'fit together' and the way in which these spaces are affected by light throughout the day. When it is not possible to gain this intimate knowledge of a space through first-hand experience, designers resort to drawings and models to help them. This interior by Jonathan Tuckey Design shows skilled handling of building elements and natural light.

▌▌▌
**Understanding
spatial
relationships**

‖‖
A typology of
technical drawing

Understanding through
technical drawings

The drawings that designers most often use to help them understand a space are technical drawings, rather than illustrative ones. That is, they are drawings that form a meticulous and accurate record of the relationships between widths, depths and heights. As a result, they clearly indicate the proportions of the elements of an interior space, but they are not drawings that show spaces as we are used to seeing them. Because of this they can appear cold, unnatural and somewhat daunting to the uninitiated, but through practice most people will become comfortable with reading them and will appreciate them for the information that they contain and communicate. Variations in the presentation of technical drawings do occur, but they also share certain standard conventions that allow anyone familiar with them to read drawings created by others.
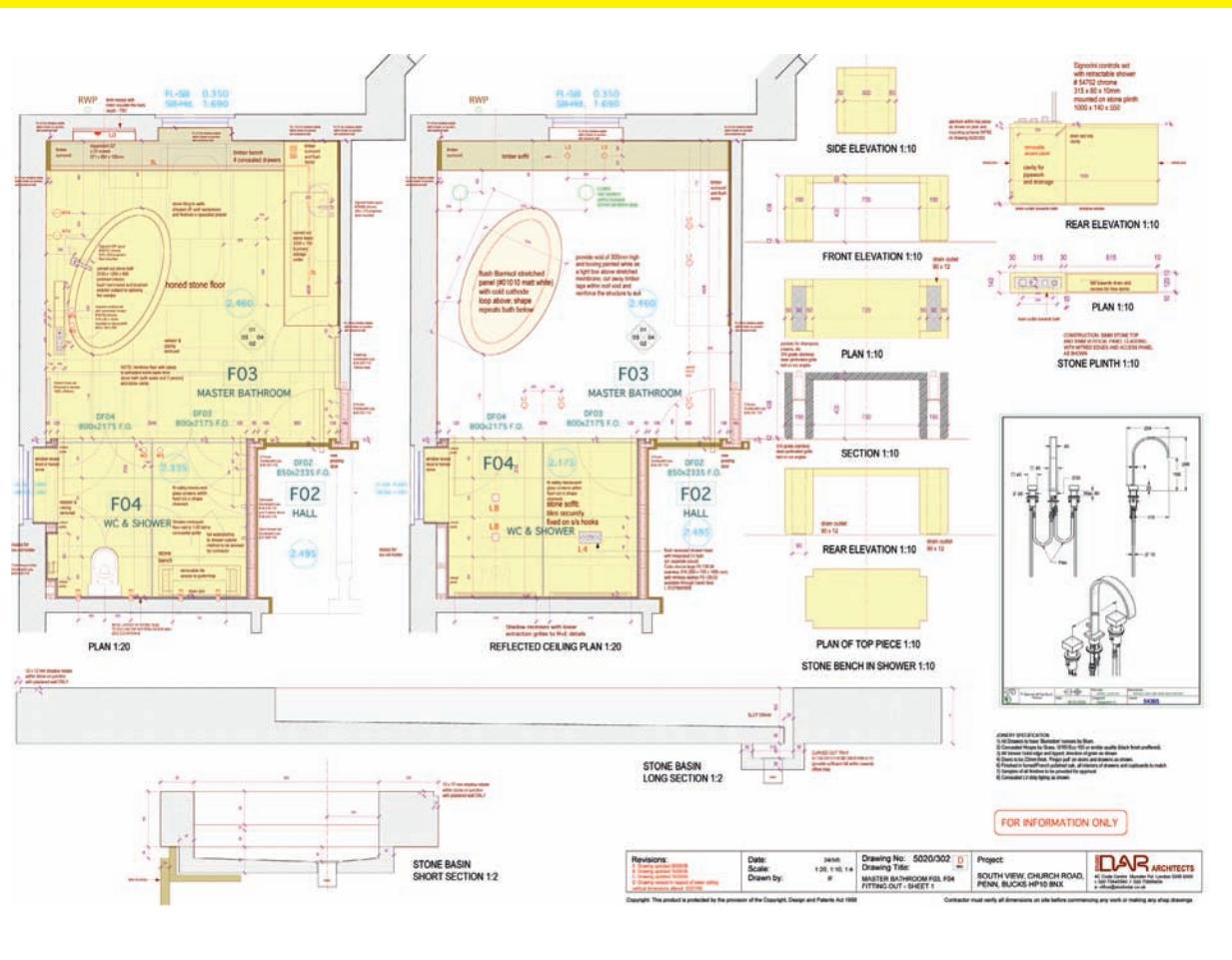
Drawings will be amended and added to over time to reflect the development of a design, but initially they will be used to give a feeling for the space. It is important to realise that although reading a drawing which already exists will go a long way to informing you about the space, the most immersive experience comes when the drawing is actually created by you, the designer. And the experience will be stronger still if you have undertaken the measured survey that precedes the act of drawing. It is only this hands-on approach that gives us the most complete knowledge of the space. The process of drawing, where each measurement and the placement of each line is carefully considered, intensifies the relationship that the designer has with the space, and gives an even more intimate understanding of a building. The act of drawing also gives time for reflection, which leads to an understanding of the possibilities that the building possesses, too.

Accurate technical drawings are based on careful measured surveys. All relevant dimensions are taken in situ and noted in sketch form. These survey notes are then used in studio to create the scale drawings. Ultimately, the detail shown in the drawings will be partly dictated by the scale at which they are drawn, but the survey should account for every possible dimension that might be needed to produce the drawings. Photographic references of details are very helpful. Undertaking a survey also gives a great insight into the intricacies of a space. Although it is often a task that designers contract out, performing the survey and drawing up the first set of survey drawings is a worthwhile task to undertake.
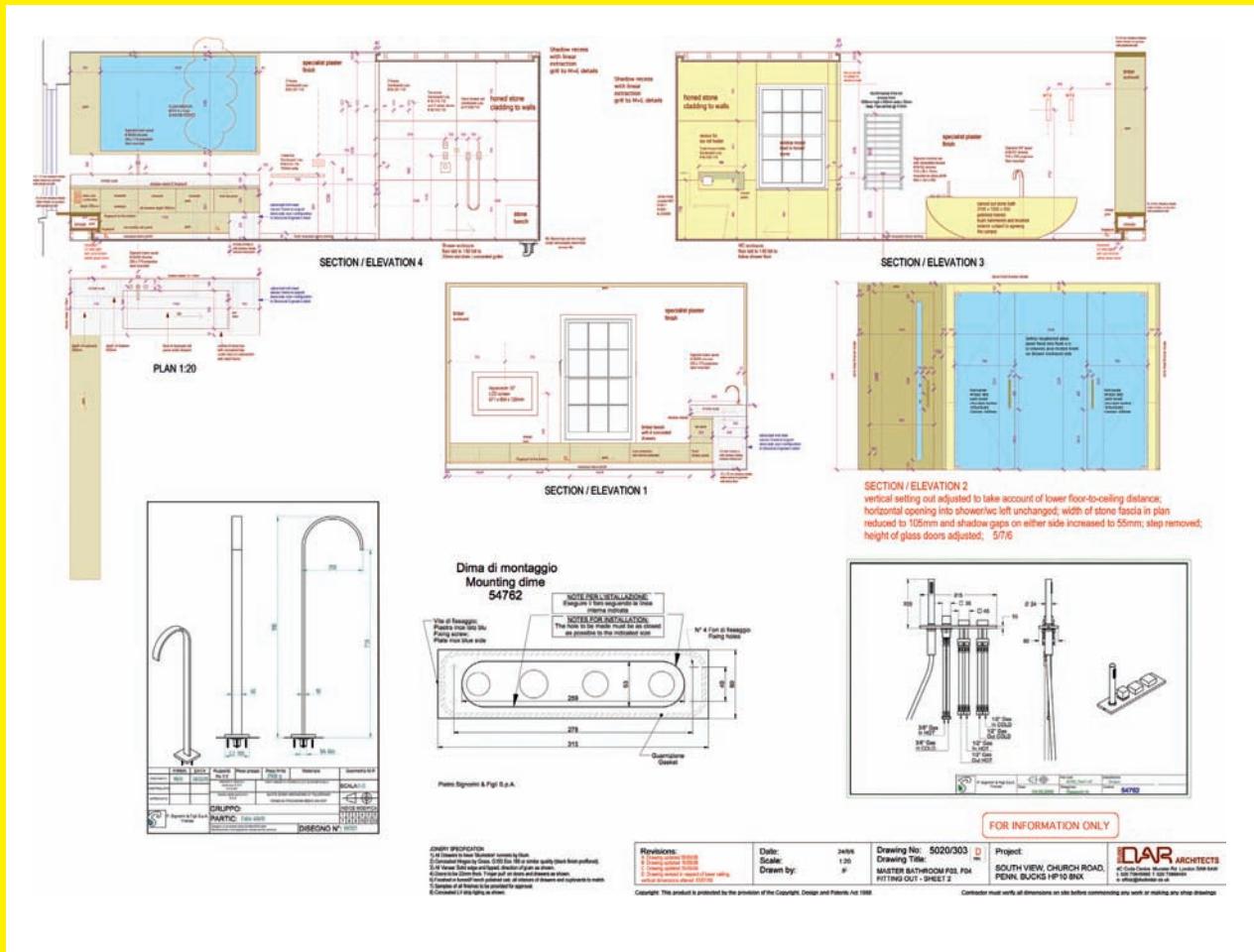
IIII **Case study**
Construction drawings in action
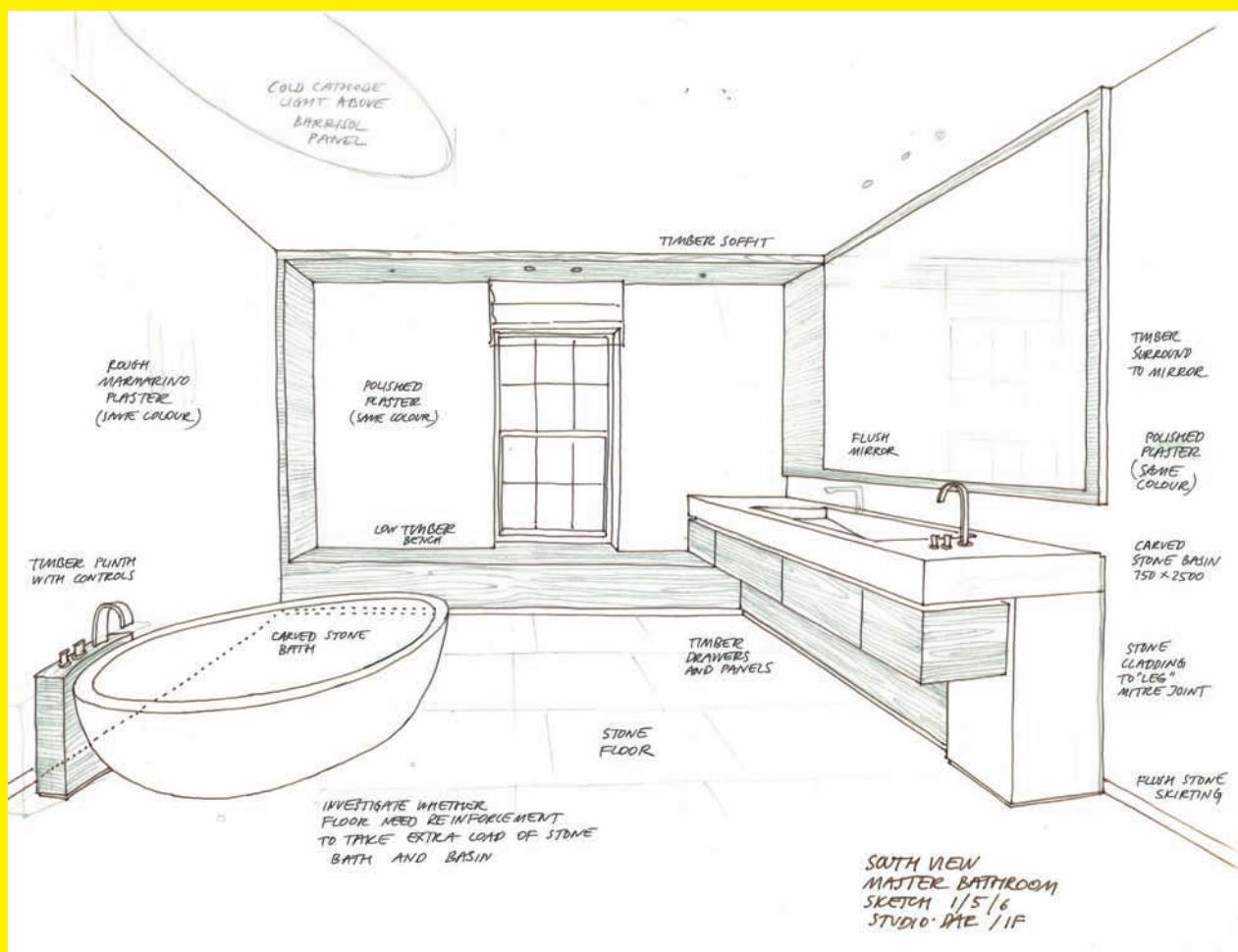
These drawings show a bathroom created by Studio DAR. They are construction drawings, showing information that will allow the contractors to implement the design.

This drawing includes a plan, a 'reflected ceiling plan' showing light fittings and ceiling detail, construction drawings for a stone bench within the shower enclosure, and a section through the bespoke basin.

▓▓▓   ▏▏▏
Understanding   A typology of
spatial   technical drawing
relationships

Here, elevations for each of the four walls are
shown. They expand on information shown in the
plan. Also included for the contractor's reference
are manufacturer's drawings of the taps and shower
fittings.

COLD CATHODE
LIGHT ABOVE
BARRISOL
PANEL

TIMBER SOFFIT

ROUGH
MARMARINO
PLASTER
(SAME COLOUR)

POLISHED
PLASTER
(SAME COLOUR)

TIMBER
SURROUND
TO MIRROR

FLUSH
MIRROR

POLISHED
PLASTER
(SAME
COLOUR)

LOW TIMBER
BENCH

CARVED
STONE BASIN
750 × 2500

TIMBER PLINTH
WITH CONTROLS

CARVED STONE
BATH

STONE
CLADDING
TO "LEG"
MITRE JOINT

TIMBER
DRAWERS
AND PANELS

FLUSH STONE
SKIRTING

STONE
FLOOR

INVESTIGATE WHETHER
FLOOR NEED REINFORCEMENT
TO TAKE EXTRA LOAD OF STONE
BATH AND BASIN

SOUTH VIEW
MASTER BATHROOM
SKETCH 1/5/6
STUDIO·DAE /1F

A perspective sketch has been produced
that the designer intends to be used
alongside the plans and elevations to help
visualise the space. This is useful for the
designer and contractor alike.
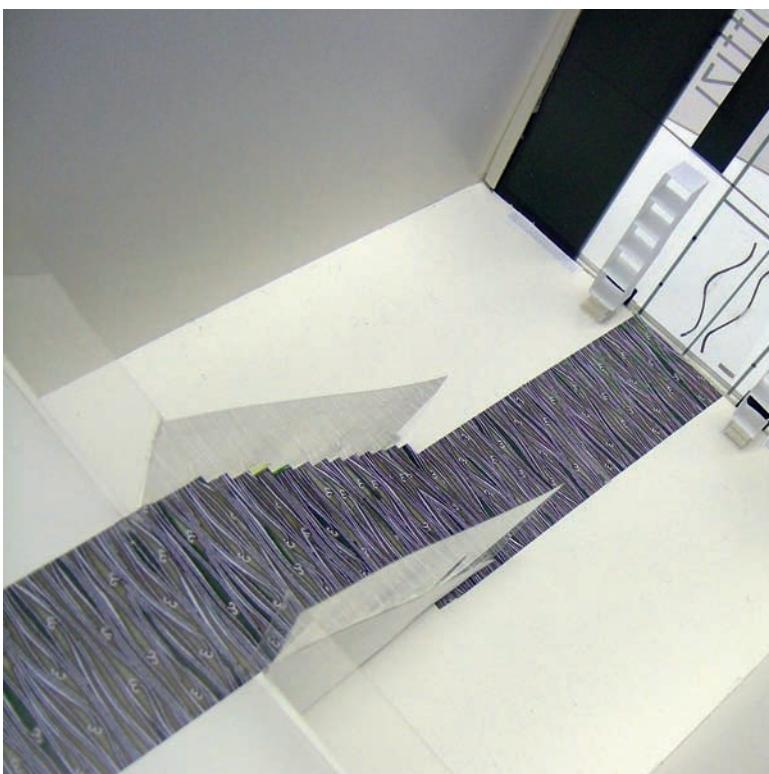
The installed bathroom. Details of the bespoke
cabinetry and the lighting detail in the ceiling can
be related to the perspective sketch, the elevations
and the plan.
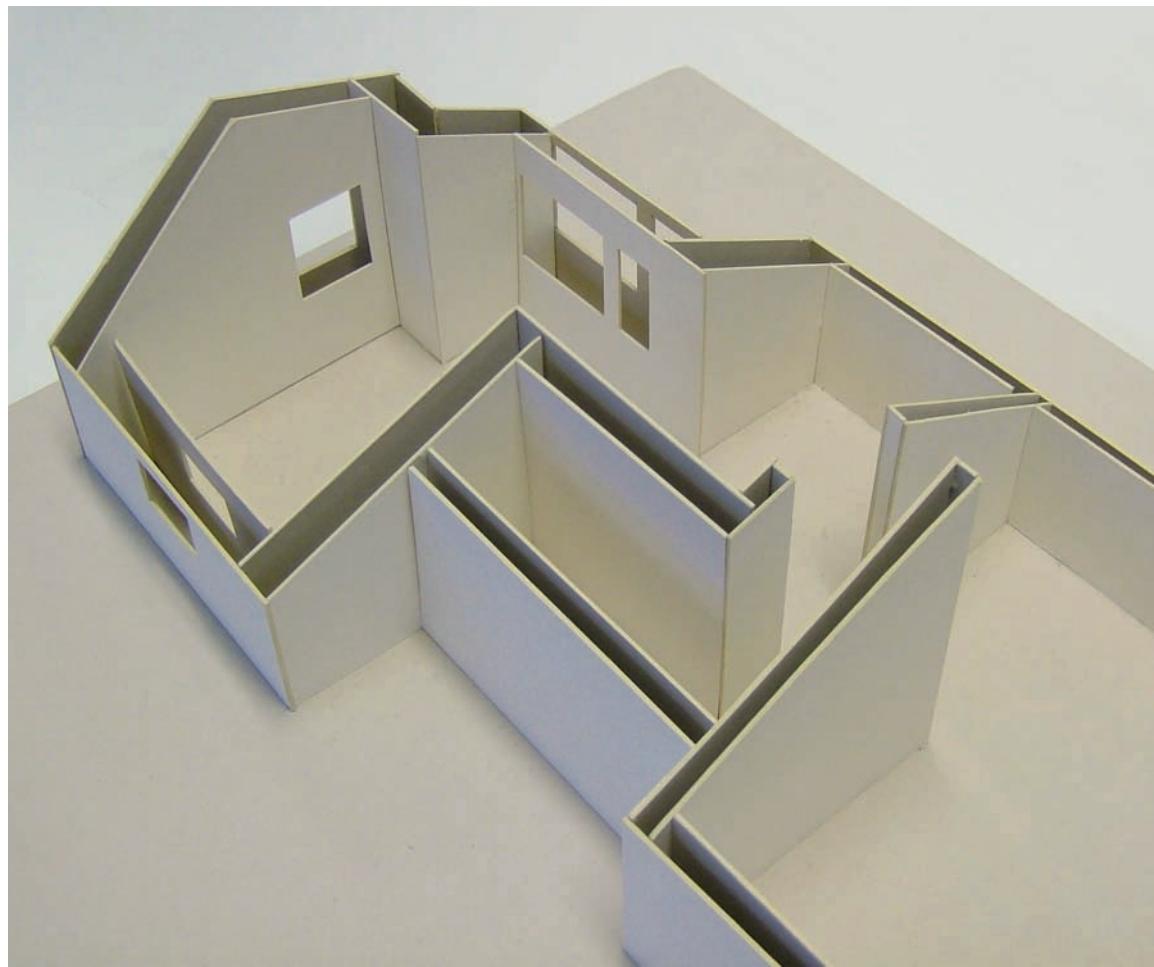
Understanding through models

Models are a three-dimensional method of visualising a three-dimensional space. The word 'model' implies a carefully constructed scale representation of a space. Some models do fit this description but others can be very simple 'sketch' models constructed from thick paper or other craft materials and adhesive tape in a matter of minutes. It doesn't matter how well finished the model is, it's more important that it captures the essence and spirit of a space and helps you to visualise the three-dimensional reality that you are trying to understand. Models can be made to a very high standard, but this is generally only for presentation purposes.

Like drawings, models can be amended over time to represent changes to the design, and the process of constructing a model, however rough it may be, will help you to understand how the space works, and how the different planes and surfaces meet and interact. Sketch models are almost infinitely adaptable. Openings can very quickly be cut that represent new windows, doors or staircases. Pieces of paper can be taped in place to suggest new ways of dividing paces. The sketch model should be treated like a sketchbook; it is a physical way to get ideas out of your head and into some sort of reality where they can be more readily assessed, compared and shared. This is a very important technique, and one that designers should make use of as much as possible. As with sketching, you do not need to be embarrassed about your abilities with paper, scissors, craft knife and tape; it is much more important that you simply use the technique. The use of basic materials and fixing methods such as drafting tape or pins adds to the spontaneity of the process, and helps in the ready appreciation of structural changes and interventions. The process of manufacture tells you as much about the space as subsequent study of the model.

Sketch models can be made very simply to help our understanding of the space and its possibilities. They can easily be viewed from any angle, and can be photographed to simulate specific views. They do not need to have realistic finishes in order to be useful.

This is another model that does not attempt to realistically portray the decorative finishes. Instead, the uniform appearance of the card from which it has been made focuses attention on the space. This in itself can be a very useful feature of a model.

A typology of technical drawing

Before discussing some of the most common forms of technical drawing in interior design, it is worth emphasising that technical drawing is used throughout the design process. It is simply because this is the first point in the design process at which technical drawing is encountered that the following exposition of drawing is placed here. It could equally well have come at other points of this book, and indeed drawing is referenced in Chapter 8, when presentation drawings are examined in more detail.

The three most basic technical drawings that we might use are plans, elevations and sections. All three are scale drawings, and are therefore accurate representations of the proportions of spaces in either the horizontal or the vertical plane.

Scale in technical drawing

Only occasionally do we draw the subject of a technical drawing at its full size. For interior designers this might be feasible when showing details of part of a scheme (for example, how two different materials are treated at their junction), but clearly it will never be possible to show a complete interior at full size. Most drawings, therefore, represent their subject at some fraction of their true size. The 'scale' of the drawing indicates the ratio between a single unit of length on the drawing and the equivalent 'real-life' measurement. It is most usually expressed on the drawing as that ratio – for example, 1 : 25, where one centimetre on the drawing represents 25 cm in the actual space. Less commonly it might be expressed as a fraction – 1/25, where each unit of measurement on the drawing is shown at one twenty-fifth of its actual size (though essentially these are two different ways of saying the same thing). Scale is sometimes represented graphically on the drawing as a 'scale bar'. Because it is so easy to casually photocopy drawings and either reduce or enlarge them in size at the same time (and therefore change the scale), the scale bar can be very useful as there is always a visual representation of the scale on the paper.

Scale rules are used to facilitate accurate plotting and measuring at scale. The rule comes ready marked with a linear representation of distance at various scales, so no calculations need to be made to change real-life size to paper size, or vice versa.

Rules can be marked in metric units (millimetres or metres, as appropriate), or in feet and inches. In this latter case the scale ratio will be expressed as 'x inches to the foot' (for example ½″ = 1′ 0″, which is a ratio of 1 : 24).

There is no right or wrong scale to use for a drawing. The aim is to show the maximum amount of detail possible in the space, and therefore the most appropriate scale will usually be the one that neatly fills the space available on the drawing paper that is being used. A quick comparison of the overall dimensions of the space at typical scales will show which scale is the most appropriate for a particular drawing. When drawing manually, the scale needs to be decided before drafting begins. When drafting with CAD, the drawing scale can usually be changed prior to printing the finished drawing on to paper. Whatever scale is ultimately chosen, it should be clearly stated on the drawing, and because of the possibility of uncontrolled enlargements or reductions being made outside of the drawing office, it is good practice to state paper size in addition to the scale, for example 1 : 25 at A3.

This list shows some metric and inch/foot scales used for interior design drawings. It is clear that common inch/foot scales are similar to, but not precisely the same as, common metric scales.

Common metric scales	Common inch/foot Scales	Actual metric equivalent
1 : 10	1″ = 1′	1 : 12
1 : 25	½″ = 1′	1 : 24
1 : 50	¼″ = 1′	1 : 48
1 : 100	⅛″ = 1′	1 : 96

The largest scale shown (1 : 10) might be used for showing construction details or similar. The other scales could all be used for drawing plans, elevations and sections to describe spaces from small rooms to entire floors of large buildings.

When it is necessary to show construction details for bespoke work, it might be appropriate to draw at full size, or a scale of 1 : 1. In some instances, details might be enlarged to show clearly how they are to be constructed. A scale of twice full size would be written as 2 : 1.
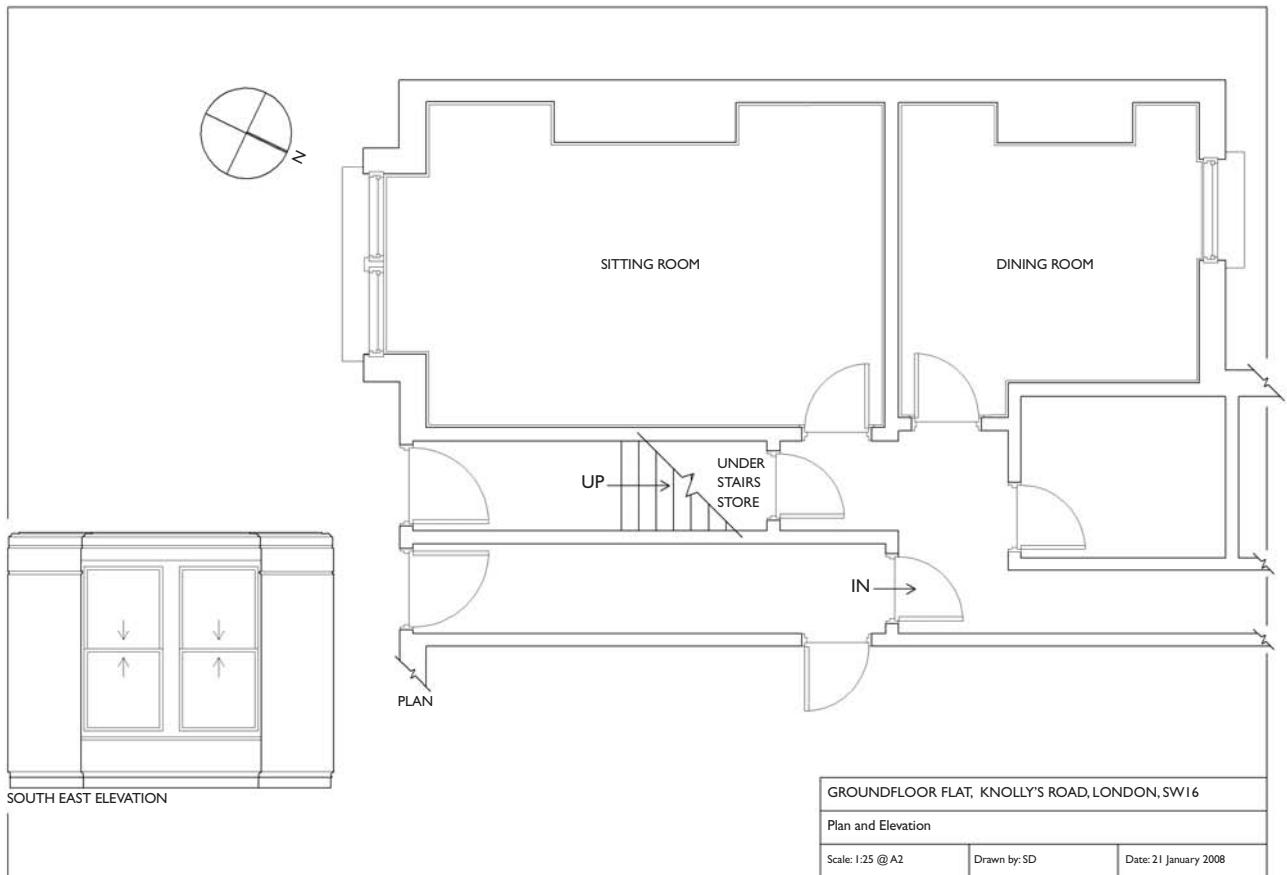
The plan

Plans are simply maps, a vertical bird's-eye view of a space. As described earlier, they are drawn to scale and therefore show a proportionally accurate representation of the space and associated walls without the linear perspective that we usually experience when viewing an object. Plans generally try to show no more than the extent of one floor or level within a building, and may only show a single room. Separate plans will show other floors or levels. They show detail within the room that can be easily drawn at scale, and many details are coded into symbols that should be easily recognisable to anyone with a little experience of reading plans. The convention is to show on plan all detail that would be visible if the space was cut horizontally at one metre above the floor level, with the top section removed. All structure and objects that are wholly or partially below this level are shown on the plan drawing in their entirety. For example, a two-metre-high cabinet that sits on the floor is drawn as if viewed whole from above, and not as if it has been cut in half horizontally by the one-metre cut. Objects that are wholly above one-metre level may be shown on the plan, but will be delineated in a different style of line to objects below the one-metre level to aid the legibility of the drawing (usually a broken or 'dashed' line).

The one-metre cut is not, however, absolute; common sense should prevail when deciding what is and what is not shown in the plan. For example, it would be unreasonable and misleading to omit windows from a plan just because the windowsill was at a height of 1100 mm (1.1 m) above floor level. It would be just as inappropriate, though, to include clerestory-style windows that were, for example, 600 mm (0.6 m) tall, and which were positioned directly below ceiling level. You should take care to show everything that you think appropriate; however, you shouldn't expect that the plan by itself can tell the whole story. When two-dimensional drawings are used to describe three-dimensional space, a combination of plan (representing the horizontal plane) and elevations and/or sections (representing the vertical plane) will be used to portray all the features of that space, and they must always be read concurrently.

Drafting (the process of drawing) can employ different conventions of line weight and style to try and convey information; wider lines can be used to delineate structure, and lines can be softened by freehand drawing to represent upholstered furniture, for example. Annotations can also be added to drawings to highlight features that would not otherwise be entirely clear. North points are shown to aid orientation and drawings are carefully titled (for example, PLAN or EAST ELEVATION) to instantly identify them. These small points are important; carefully crafted and easily legible drawings promote confidence and convey a sense of professionalism to your colleagues and clients.

Plans have an important role to play in architecture and interior design in that they are usually the first tool used during space planning. However, in the same way that plans should not be read in isolation, the planning process must work in the vertical as well as the horizontal. A study of plans that show furniture layouts and structural elements will soon show that plans in themselves can be drawn entirely correctly but can still be misleading in their representation of space. The process of space planning must consider the impact of the vertical almost as soon as work on the horizontal plan is begun, and for that it is necessary to draw elevations and/or sections.

SITTING ROOM

DINING ROOM

UP

UNDER
STAIRS
STORE

IN

PLAN

SOUTH EAST ELEVATION

GROUNDFLOOR FLAT, KNOLLY'S ROAD, LONDON, SW16		
Plan and Elevation		
Scale: 1:25 @ A2	Drawn by: SD	Date: 21 January 2008

This survey drawing for a flat in London shows
a floor plan and an elevation of one of the walls.
Note the title block, showing all the relevant
information such as scale and date of drafting.

This elevation drawing shows part of the bar area of a hotel in Bangalore, India. The rendering shows material finishes and proposed lighting effects, and figures have been added to animate the drawing of what should in real life be a bustling and lively space.
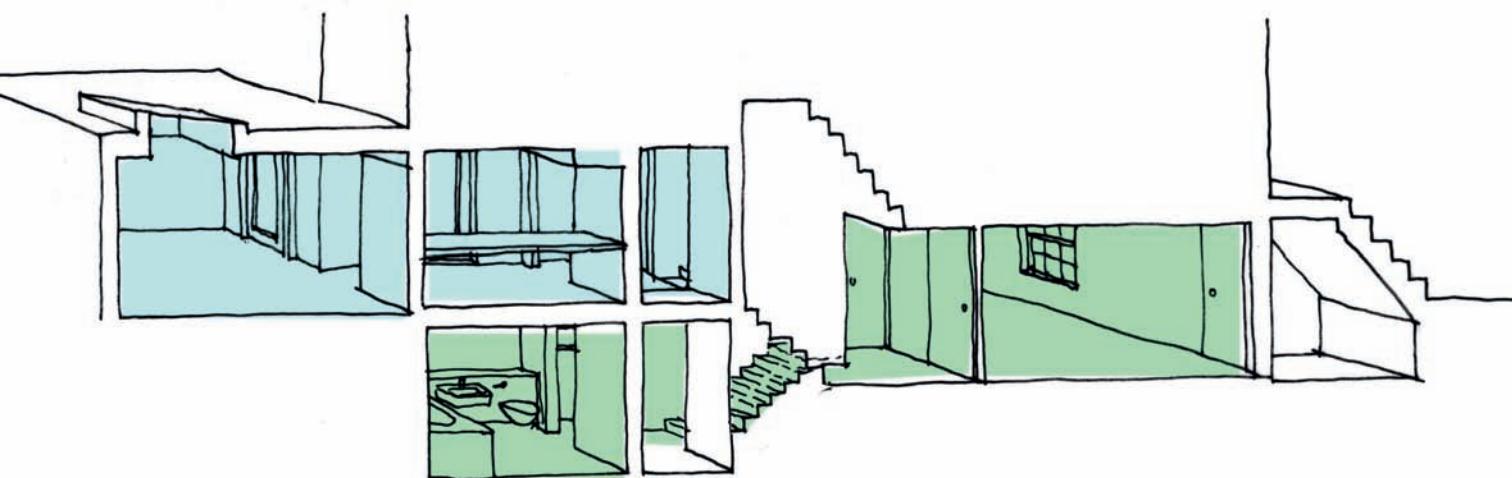
The elevation

Where plans show horizontal surfaces, elevations show vertical ones. In other respects they are very similar; they represent a record of height and width, and are drawn to scale. As with other technical drawings, they do not represent the space as we see it in real life, but they are an ideal way to assess the proportions of elements such as walls, windows, doors, fireplaces. They give a good understanding of spaces when used together with plans. The conventions employed when drawing elevations are similar to those used for plans. The vertical cut is taken one metre in front of the wall to be depicted, and all furniture and objects that sit closer to the wall than this line are shown in the elevation.

Once again, the furniture is not shown as if it has been cut in two; the complete piece is shown even when parts of the piece extend further from the wall than the one-metre cut line. As with the plan, there is some flexibility in what is shown and how it is depicted. Clarity is the key. Unlike the plan, an elevation does not show walls, floors and ceiling structures. Instead, the elevation ends at the face of the boundary building element. There must be a total absence of linear perspective in the elevation. This is relatively easy to understand when looking at a completed elevation, but often difficult to master when drawing one. Many people experience the temptation to add illicit glimpses of perspective to their elevations, many more so than feel the need to do the same to their plans. It is not clear why this should be so, but it may have to do with the fact that we naturally feel disconnected from the plan (it is only very occasionally going to be a view that we come close to seeing in real life), but we have a natural affinity with the elevation (a view we think we see almost all the time).

The section

The section works in the vertical plane as does the elevation, but with one important difference. A section can be placed at any distance away from the wall that is the subject of the drawing, thus including or excluding features at will. In fact, the cut does not even need to be a single planar cut through the space; it can jump from plane to plane, varying in distance from the subject wall, but remaining parallel to it. Like the elevation, there should be no perspective, but unlike the elevation, the structure enclosing the space is shown at the point where the section cut dissects it, so wall thicknesses and so on are indicated.

Shown here is a quick section sketch by Emily Pitt for the design of a house in Notting Hill, England. Colour has been used to show use: green for guest areas and blue for occupant areas.

|||| **Thinking point**

Manual or digital?

Are there any designers who still sit at their drawing boards to draw by hand? Can't drawings all be made by using drafting software on any good computer? And what about model making – why would anyone want to work with glue, scissors, sticky tape, craft knife, card and paper to make a model when they could use that very same piece of drafting software to produce a digital model of the space that can be rendered and lit an infinite number of ways? Isn't it sensible to tap into the power and freedom that computers give us for all our design work?

The answer is both yes and no.

There is no question that computers allow us to work smarter, more efficiently and with more freedom than is often the case when using manual techniques, but this argument misses a vital point about the relationship between old and new methods that can more than compensate for the efficiency that computers bring. Manual drafting and model-making is a craft that gives you a real connection with the project. There is a wonderful link that allows ideas to flow through you and your pencil on to the paper which means you to engage more fully with the project. All the decisions about placement of lines and so on belong to you, and not a computer, and you are forced to think carefully about what you are drawing. There is no doubt that working manually leads to a better understanding of drawings, what they represent and how they work. The manual process allows for a more expressive and spontaneous approach that computer-based design often lacks; a sweep of the hand across a sheet of paper which leaves a unique and eloquent pencil line is not something that can easily be reproduced by a computer, for example.

On the other hand, computers give us the opportunity to copy and edit work quickly and easily. Simple functions such as 'Copy/Paste' are incredibly liberating – no more laborious hand drawing of 30 tables and 120 chairs on a restaurant plan, for example. Instead after just a few keystrokes, the designer is free to concentrate on the design, rather than the act of drawing itself. Drawing with the computer also means that ideas can be exchanged quickly and easily by email or other means of file transfer. So, computers give us freedom and versatility throughout the design process, which is very appealing. But you should remember that the CAD (computer-aided design) software is essentially only a pencil, a tool to aid the drafting process. It has functions that enable some of the tedious aspects of working on drawings to be automated, and it can put lines on to a virtual sheet of paper where you tell it to, but CAD software cannot create a drawing by itself, nor is it able in most instances to decide if what is being drawn is sensible or logical in construction or space-planning terms. It is, therefore, important that the operator understands what it is that is being drawn and how it should be represented on the page. The computer cannot add creativity to a project: that is the sole responsibility of you, the designer.

4 Understanding building structures

Besides familiarising yourself with the plan form of the space, you should try to make yourself aware of the methods used in the construction of the building. Understanding construction is not simply an academic exercise; knowing how a building is put together is a lesson in possibilities. Once you have a good idea of the structure you will find it easier to make decisions relating to the implementation and practicality of your design work, especially when looked at it in conjunction with the constraints incumbent upon the project, be they time, budget, legal or technical.

A study of building construction will often change the way you look at buildings that you use on a daily basis, and an enquiring eye is a very useful skill to develop. The knowledge that you gain by looking at structures will add greatly to your projects and, just as importantly, being able to speak with a degree of confidence about structure will give you credibility with contractors and clients alike. Unfortunately, details of the building structure are often hidden away underneath surface finishes and detailing. In the absence of definite information regarding its construction, experience will help you make some reasonable assumptions or deductions about the building.

Building construction principles

Framed structures

As previously described, all buildings are subject to various forces that must be resisted if the building is not to collapse. Although the first structures in history were built through intuition rather than any theoretical understanding, they used many of the same principles that underpin building construction today.

Essentially, the structure of almost every building can be described in one of two ways; they are either frame or load-bearing. These two terms describe how the loads that the building experiences are transmitted to the foundations.

Framed structures are essentially a collection of horizontal beams (forming each floor level) that transmit forces to vertical columns. These columns in turn provide a pathway through which the forces can travel downwards to the foundations and from there into the ground. The vertical columns may form the walls at the perimeter of the building, or they may be distributed throughout the space. Where they are part of a wall structure, they will be covered with suitable materials to create the finished walls. When positioned within the space, two or more columns may be joined to create internal divisions, or they may be left as discrete columns. The great benefit of this multi-level framework is that, because the columns are transmitting the loads vertically, solid-wall structures are not needed to support the floors above, and can therefore be omitted (creating large open-plan spaces punctuated by the supporting columns), or walls can be created using non-structural materials such as glass. Framed structures allow us to build high-rise buildings that are often characterised by facades apparently composed entirely of glass, though the materials used for these curtain walls (that are mechanically suspended off the frame) can be practically anything. Radical architects of the Bauhaus movement in Germany in the 1920s first conceived the use of glass in this innovative way. Because of the strength of frames, buildings can be made very tall. It was the development of framed structures in the latter part of the nineteenth century that lead to the first high-rise buildings.

If the internal divisions are not carrying any load (other than their own weight), they can be moved or altered without the need for any significant interventions to the surrounding structure in order to maintain its integrity. For the designer, therefore, framed structures can give a lot of freedom in planning spaces.

Framed structures do not need to be large scale. The principle can just as easily be applied to houses as it can to skyscrapers. Lightweight timber frames are a common method of construction in many regions of the world, though the frame is usually invisible under a skin or veneer of other materials such as timber weatherboarding or brick. Frames of this type will usually be braced to prevent twisting by the addition of a plywood skin to the outside of the frame. Timber framing of residential developments allows fast and accurate construction by a relatively low-skilled workforce, as it is an easy material to work with. Sections of the frame are often pre-fabricated off site under good working conditions, then brought to the site for rapid assembly.

Timber frames are also an environmentally acceptable construction method, assuming that the timber used is from a sustainable source. Highly energy-efficient buildings can be made by inserting insulation between the vertical and horizontal timbers, creating buildings that perform extremely well in some of the most extreme climates, such as the northern hemisphere winters of Canada and Scandinavia. Light frames can also be made from thin section steel, galvanised to prevent corrosion. The internal face of the frame can be very easily covered in plasterboard or other materials to provide a surface suitable to receive decorative finishes.

The framed structure of The Farnsworth House by Mies van der Rohe in Plano, USA, is clearly evident and is a major visual feature of this iconic design. It is considered by many to be one of the most beautiful buildings ever designed.

Load-bearing structures

In a load-bearing structure, it is the masonry construction of the walls themselves that takes the weight of the floors and other walls above. The walls therefore provide the pathways through which forces travel down the structure to the foundations. There is no separate constructional element of the building to do this, as with the frame in a framed structure. The implication of this is that care must be taken when adapting existing load-bearing elements of a structure, if the integrity is not to be compromised. If changes are made to the structure without adequate precautions being made, then the structure will at best be weakened, and at worst collapse.

If it is desired to move door or window positions, or make new openings in a wall for whatever reason, then the loads that are being supported by the wall must be diverted to the sides of the opening to prevent collapse. This is usually achieved by the insertion of a beam or lintel at the top of the opening. This lintel will carry the loads travelling through the wall into the structure at the side of the opening, from where they will travel downwards and so maintain the integrity of the structure. The beam or lintel itself will need to be adequately supported at both ends within the remaining structure. A lintel is a single, monolithic, component and can be manufactured from any suitable material; timber, stone, concrete (either reinforced or pre-stressed) or steel are the most common. Pre-stressed concrete lintels can span considerable distances, as can rolled steel joists (RSJs), which are often used in renovation work to allow the removal of internal walls by supporting of the structure above.

If greater distances need to be spanned, it may be more appropriate to construct an arch rather than use a lintel, and this was certainly true before new technologies allowed the use of steel and concrete. Because of their superior mechanical properties, arches can generally support greater loads than lintels. An arch is considered as a single unit, but unlike a lintel it can be composed of a number of shaped components (usually stone or brick, called voussoirs), though it too can be monolithic, like a lintel. Once the individual elements of the arch are in place, the compressive forces (weight) of the building materials above hold them together. The simplest shape of arch is the round or semicircular arch, but there are many variations of form, even flat arches (sometimes called jack arches). Arch construction is a very practical engineering solution to the problem of spanning openings that are often treated as decorative elements of a building's facade.

Renovation of this load-bearing structure (a traditional Victorian terraced house in London) required the introduction of supporting rolled steel joists (RSJs) in order to allow the removal of internal load-bearing walls. Here the steel beams are being brought into the house through the front window.

Variations

Although the principles outlined above are relatively simple, experience will soon show that there are many variations on these themes that are used throughout construction. Manufacturers develop new methods and interpretations of existing solutions and the desire of architects to challenge existing ideas of what a building is mean that these techniques soon become feasible. Changes to building regulations and codes for reasons of fire safety, tougher acoustic performance, reduced environmental impact and so on, all mean that there is a need for new building practice. Details change but the principles remain the same.
With experience, it becomes easier to discern the theory behind the construction, but it is worth bearing these complexities in mind when looking at building structure.

In the same London house, the RSJ (painted red) can be seen during its installation into the floor space. This has necessitated the trimming and re-attachment of several floor joists. A structurally simpler, but aesthetically less pure, solution would have involved fitting the RSJ below the existing floor joists.

Materials for construction

Timber

In the same way that new ideas about buildings bring new methods of construction, they also inspire new materials. The range of materials that may be utilised during the construction process is much wider today then even a couple of decades ago, yet there remains a core of enduring materials, some of which have been around for centuries, which in one form or another account for the majority of building materials consumed.
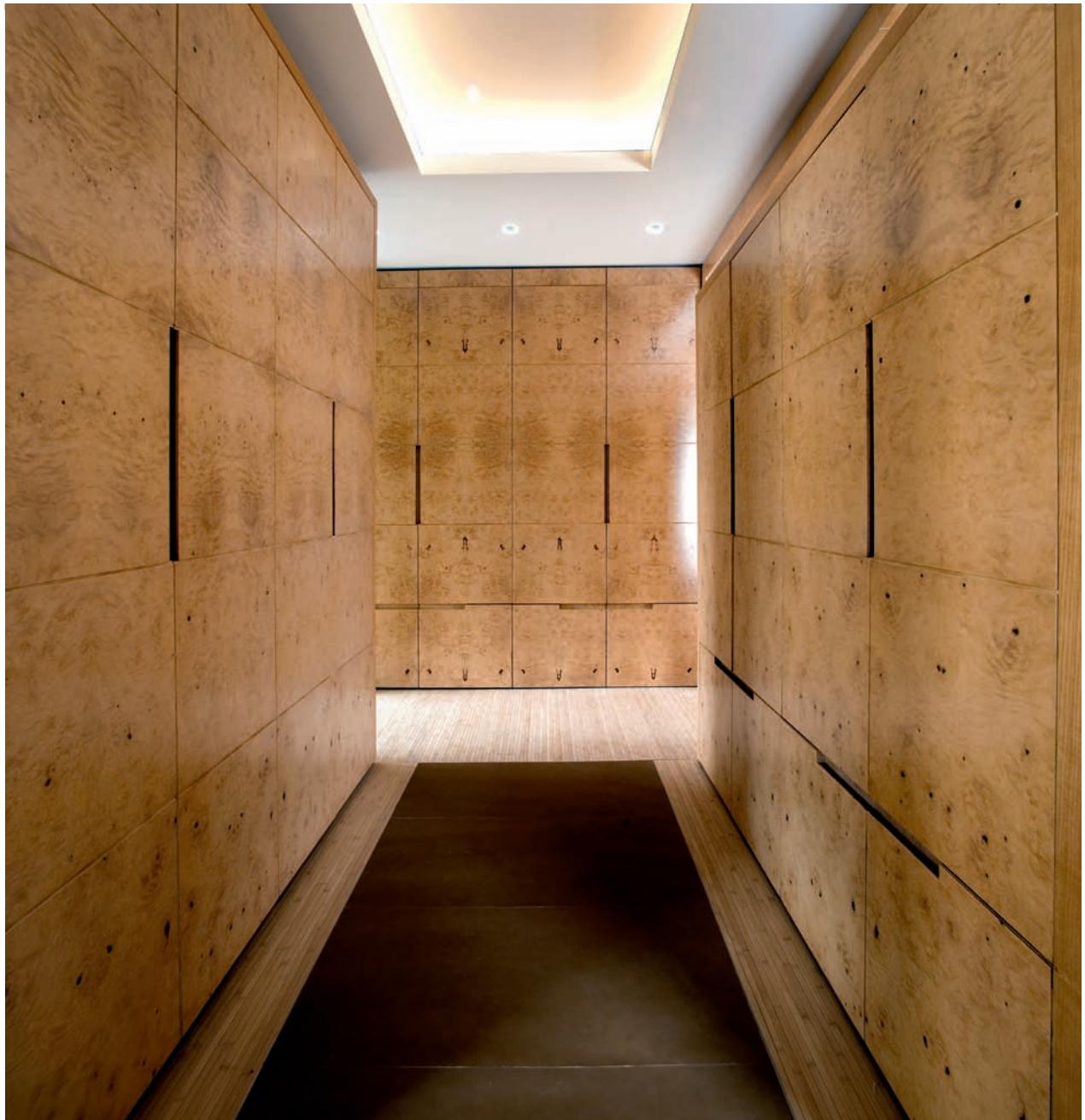
Timber is a very convenient material to use for construction. It is easy to transport and handle, and generally easy and forgiving to work with. There are two categories: hardwood and softwood. It should be understood that these names are not intended to describe the actual properties of the timber; rather they refer to its origin.

Softwood is predominantly from coniferous trees such as larch, pine and spruce, and often farmed in managed forests. It is generally used for construction (for example, light timber frames) and therefore usually hidden from view. However, it can be used decoratively, too.

Hardwood species are broadleaved trees such as oak, ash, walnut and teak. They are most often used decoratively for floors, furniture and interior fittings. Hardwoods are sometimes farmed from sustainable sources, but tropical hardwoods such as teak, iroko and wenge are vulnerable to illegal logging operations in their native forest habitats and several species are recognised internationally as being either endangered or critically endangered as a result. A responsible designer will check the status of timber species before specifying.

Raw timber can be processed into products such as plywood, chipboard and fibreboard. These materials retain many of the desirable properties of timber, such as their workability, but overcome some of the problems, imperfections and natural defects that may manifest themselves when using natural timber. They are sometimes used for construction, but can be used for furniture manufacture and may be on display. If used in this way, clients may see them as inferior or fake, but they are valid materials to use, especially in contemporary schemes, and their benefits can make them the most appropriate material choices in many situations.

Building construction principles	**Materials for construction**	Mechanical and electrical systems

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Timber veneers have been extensively used in this dressing area to provide a beautiful high-quality finish on this bespoke joinery. The pieces have been carefully matched by the joinery company in order to create a uniform finish. It is often possible for the designer to hand select the veneers to be used for work of this nature.

The design process | Understanding the project | Understanding the space | **Understanding building structures** | Organising the space | The human interface | Sustainable design | Communicating design

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High-quality stone and timber elements
work together here to convey a sense
of sophistication. The success of such simple use
of quality natural materials is often surprising
but is almost always the case. When after a similar
look, the designer should be careful to let
the materials speak for themselves; there is
no need to resort to over-complicated design.

|||| Building
construction
principles

||||| **Materials
for construction**

|||| Mechanical and
electrical systems

Stone

Brick

Stone is used in construction and many types are considered attractive enough to be used for their decorative as well as their practical properties. However, natural stone should be selected carefully as some types (limestone, for example) can be porous (the result of which is that it can stain easily), and can be relatively soft, such that they may not be suitable for uses such as flooring. When using stone, the suppliers' recommended fixing methods and after-care regime should always be followed. The surface can be cut and finished in different ways to highlight colour, pattern and texture. Designers should alert clients to the fact that, as a natural material, installed stone may not match completely any samples which have previously been viewed, as there may be significant variations in pattern or colour, even from stone quarried at the same time and in the same location. Although relatively little energy is used to finish stone to a usable condition, it is not a sustainable material simply because once quarried, the source cannot be renewed. Indeed, designers are already finding that some quarries are exhausted of particular types of stone.

Brick is manufactured from clay that is hardened by kiln firing. The mineral content of the clay will define the colour of the fired brick, which may vary from dark brown through red to yellow. Surface texture can be applied to the moulded or cut brick before firing. Standard sizes are used for construction, and brick can be used decoratively rather than structurally to clad interior and exterior surfaces.

In this contemporary take on the traditional deli, new shapes and styles of furnishings and fittings are married to a use of materials that have been found in similar establishments for decades. The cool, clean feeling of the marble connects past and present and its natural markings provides subtle decorative pattern.

Concrete

Concrete has been used as a building material for centuries. It is a mix of cement with an aggregate, traditionally stone chippings or gravel. Concrete is generally used in construction, where it is poured to form slabs for floors and foundations, or into moulds (called shuttering) to form vertical features such as walls or columns. It is often used in conjunction with steel reinforcing rods that combat tensile and shearing forces, but it is a very versatile material. It is increasingly used for its decorative qualities as it can be polished and coloured. The gravel aggregate can be exposed, or other materials (such as crushed recycled glass) may be substituted, which give new opportunities for colour and texture when the surface of the concrete is polished. However, the manufacture of cement used for concrete uses vast amounts of energy and produces a great deal of pollution, to the extent that many designers choose not to use the material because of the environmental harm that it causes. If used in large quantities in a structure, though, this damage may be offset by the thermal store effect of the mass of concrete which helps to regulate temperature. Considered over a period of at least 15 years (depending on the installation), this can offset energy used during manufacture.

Textured concrete (the lower balustrade) and polished concrete (the floor) combine with English oak, bronze and glass to provide practical and decorative finishes in The Lightbox gallery in Woking, England, designed by Marks Barfield Architects. The concrete was poured into a rough timber container to give it a textured surface.

||||
Building
construction
principles

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**Materials
for construction**

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Mechanical and
electrical systems

Steel and other metals

Glass

Used in large amounts in the construction of the frames of many structures, steel is another material that is being used more for its aesthetic qualities. As always, careful selection of materials is important as there are different types and grades of steel suitable for different purposes. Decoratively, stainless steel is most commonly used for kitchen appliances, but other steels can be used for other purposes. Steel is available as sheets, bars and tubes in various sizes. It can be formed into different shapes by metal fabricators. Architectural metal mesh is a relatively new treatment that has great decorative potential in which steel cable and rods are woven into sheets. Depending upon the weave and the gauge (size) of material used, the mesh may be completely rigid, or it may flex parallel to the warp and/or weft, allowing it to be wrapped around other objects and surfaces.

Other metals used both in construction and for their decorative qualities include aluminium, zinc and copper. Designers should carefully consider the effects of oxidation on the visual appearance of these materials, and protect against this as appropriate. Some metals are also relatively soft, and wear and tear needs consideration before specifying.

Glass can be used as an interesting material in its own right, rather than simply being a practical choice of transparent material for windows. Glass has many uses such as for shelving, work surfaces and splash-backs, doors, screens and wall panels. For any interior application, toughened or tempered glass should be specified. Such glass has been made safer by heat treating. Not only does this make it around five times stronger, it also affects the properties of the glass such that when broken it shatters in small square fragments which are far less likely to injure than long shards. However, once heat treated, the glass cannot be cut or worked, so any drilling or cutting required for hinges and handles must be done before the heat treatment takes place.

Glass provides many opportunities with apparently contradictory qualities of enclosure and transparency. Because of its nature, it should be respected but certainly not feared by the designer. As long as advice is sought from the supplier and care is taken when detailing its installation, it is possible to use it creatively in many situations, though it is by no means a cheap material for large installations.

Mechanical and electrical systems

Buildings require systems to deliver heat, light, power and water throughout the structure, and to take away waste. Although all but the end points of these systems are usually hidden from view, they do need to be considered by the interior designer, as they require space within the structure, and this may impose limitations upon the design.

Climate control, water supply and electrical systems

Climate control is achieved in many ways, largely dependant upon location. Buildings in temperate climates may need systems for both cooling and heating; those in tropical climates may only require systems to cool the space. It is important to be familiar with the basic functions of these systems at the very least, as there is likely to be some evidence of their existence in the interior (radiators and air inlet/outlet grilles, for example) and the siting and accessibility of the controls is an important consideration. Gas supply pipes for central heating boilers and cooking appliances will have some restrictions placed upon their locations within the structure by building regulations. Depending upon the construction of the building, installation or repositioning of these systems could be relatively straightforward, or it could be a major undertaking.

Water supply and drainage also require careful consideration. Supply pipes are relatively small in diameter, but drainage pipes are larger, especially soil pipes that take foul water from toilets. Building codes and regulations often place controls on where these can be positioned, which may impact upon options for planning bathrooms and the like.

Although electrical supplies have been built into houses for decades, many design projects now need to consider cabling for digital media such as televisions, phone, computer networks and lighting controls. As with the other systems listed, cabling and power supplies can take up large amounts of space in walls, ceilings and under floors, and they should be considered from the start of a project. Just as a designer would work with professional plumbers or air conditioning engineers, most would also sub-contract the design of integrated data and electrical systems to a specialist. It is likely that the designer will have a large part to play in simpler installations of lighting and power systems, so once again it is sensible to have an understanding of the needs of these systems.

Normally out of sight, but no less important than any visible element are the building services such as heating and air conditioning. The problems of integrating unsightly air conditioning into the existing structure of this bar have been cleverly solved by Nelson Designs. A stretched vinyl material neatly covers the duct work, while providing a satisfying contrast to the brickwork.

5 Organising the space
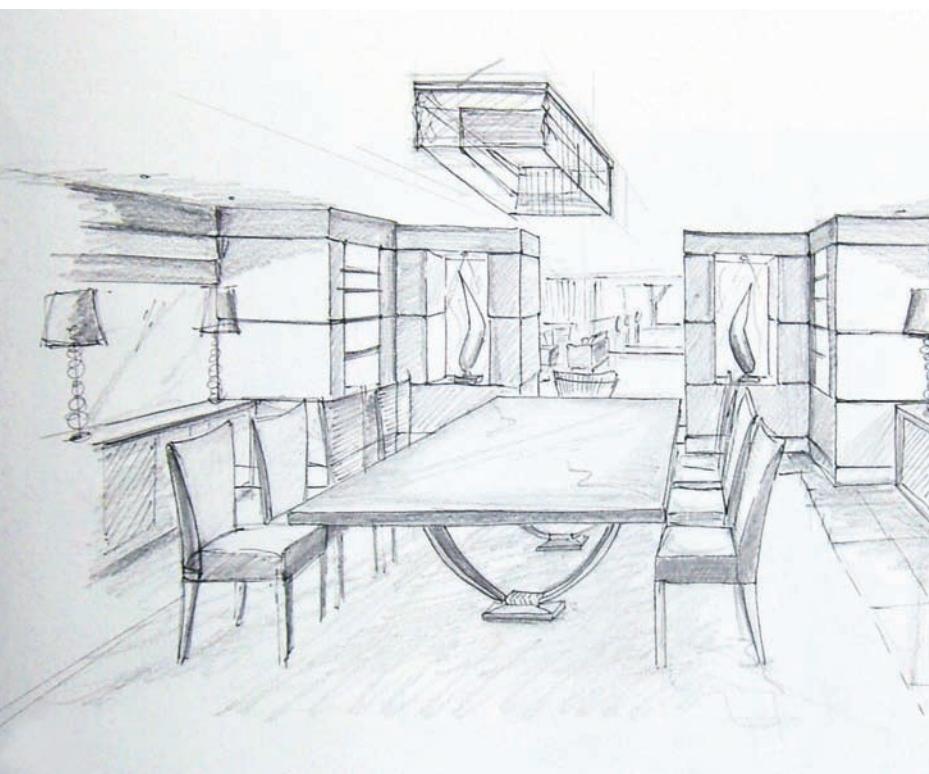
The brief has been taken, the raw data scrutinised and analysed, research undertaken, and the space surveyed. A concept has been generated to drive the project forward and to give that reassurance of a reference point for the design. And now the part of a project that most enthuses the majority of designers. The time when your imagination is given free reign to envisage unique and special solutions. It is the time when ideas take shape and become defined, when nebulous ideas are made manifest and given body and form through your sketches and drawings.

Design principles are the axioms by which we can control and organise a space. They have been tested over time and have proven to be resilient and adaptable to the needs of different design disciplines. Many are universal: recognised across different cultures. However, as a designer, you should not be afraid to question them. It would, perhaps, be more appropriate to view the principles as guidelines – good solutions will usually be achieved by following them, but truly spectacular and inspiring results are sometimes only achieved by working contrary to the accepted ways. As with most disciplines, having a sound knowledge of the basics is needed before the rules can be broken successfully.

Design development

Development is the process of taking an idea, identifying its strengths and weaknesses, and resolving any problems to create a strong design solution. Designers almost universally conduct the development process through sketching; but note that the term sketching does not necessarily mean the creation of drawings with artistic merit. Rather, it is about the use of a sketchbook as a notebook, a place where ideas are visualised, and about the way in which sketching enables the designer to express an idea visually through the use of pen or pencil and paper. Sketching should be one of the fundamental design tools by which you can create successful design solutions.

One of the most important points for the new designer to understand is this: you cannot conjure up a fully resolved and finished design solution in your head, and use drawing only as a means to record the finished product. It is the act of drawing itself that will reveal to you the extent of a design problem, and only further drawing will allow you to find the best solution from amongst many possible solutions. At this stage of the process, designers draw to identify and resolve problems on the way to creating fully developed and resolved solutions. Remember that sketching is an exciting process. What unique and beautiful solutions will you be able to create to answer the practical and aesthetic needs of the project?
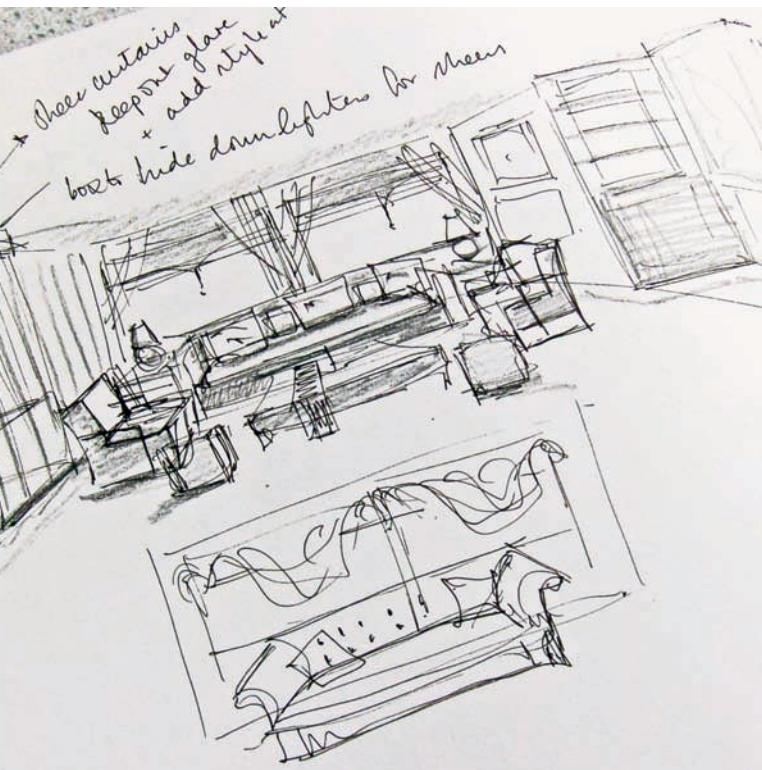
This perspective sketch has been carefully drawn at an advanced stage of the design process, to accurately assess the design solution as it stands. Light and shade are represented to assist the three-dimensional modelling within the drawing, but the sketch is still free enough to allow for changes to be made, should better solutions present themselves.

How to sketch

So, how should you approach the task of sketching if you have never tried it before? Equip yourself with one or more sketchbooks, or just a pile of paper from the photocopier. It doesn't matter what it is, and it doesn't matter what your sketchbook looks like (though a proper sketchbook will allow easy access to sketches and help establish a timeline for the development of your ideas). Sketchbooks should be kept available all the time, so that you can quickly and easily jot down your thoughts, and never loose the germ of a great idea. Many designers have sketchbooks of different sizes in use simultaneously, each suited to a different purpose.

A small pocket-size book (perhaps A5 or Half Letter size) is most useful for keeping with you at all times, though it is very much a tool for taking visual notes, rather than an easy platform for developing a design. Books at A4 (Letter) size can be carried in a briefcase, laptop case, or shoulder bag, and are a good compromise between portability and ease of sketching. Larger books (A3 or Tabloid) are useful to keep in the studio, and though they may not be used as often, their larger format helps with freedom of expression when sketching. Spiral-bound books are easier to hold open when drawing, but hard-bound books will often last better and are easier to file on the bookshelf. It really doesn't matter what you use, but do make sure you use something and keep on using it. Your sketching ability and confidence will improve through practice, even without formal training.
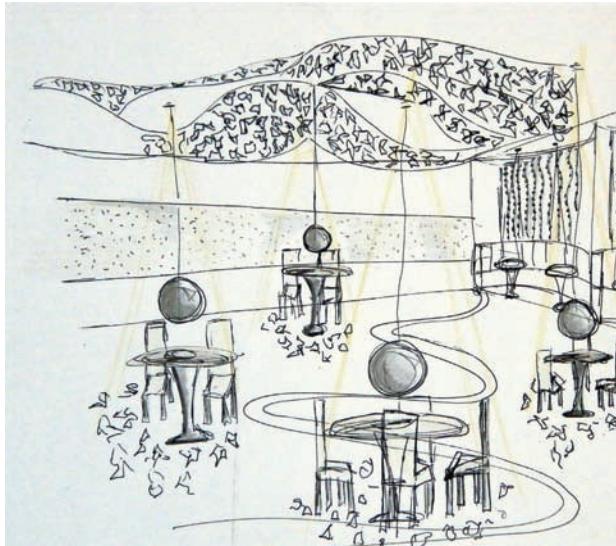
This sketch perspective drawing is made with enough care to show accurately the proportions and planning implications of this space. It is, though, just one of many ideas that have been tried by the designer during the design process that aims to produce the most satisfying solution from aesthetic and practical viewpoints, and is spontaneous enough that designer doesn't become too precious about any of the ideas and unwilling to change.

Tools for sketching

It might be assumed that pencil is the most appropriate method of mark-making in the sketchbook, but designers use a variety of materials. There is no perfect pencil or pen to use; you should experiment and find the one that gives you the most satisfying mark. You can use anything; traditional wood-cased graphite pencils, modern mechanical or technical pencils, ballpoint pens, fibre-tip pens or fountain pens. Probably the one instrument that is least suited to sketching is the technical pen. These should be kept for their proper purpose of drafting on tracing paper or film, and not used in sketchbooks as pen nibs can get blocked with the fibres from the paper.

When beginning to sketch, students are often apprehensive about making marks on the pristine pages of a sketchbook, particularly if they feel they do not have a talent for sketching. This is a real shame, as one of the keys to producing informative (but not necessarily beautiful-looking) sketches is having a confidence about mark-making that will only come through practice. One of the first exercises you can try is to gather together pens and pencils of varying sorts and to simply draw in your sketchbook. Draw lines, squares and circles, in fact anything at all. Try cross-hatching the shapes you have drawn. Don't aim for perfection and, if using a pencil, do not be tempted to erase any lines that you consider to be wrong – ignore them and carry on. Notice how the different pens and pencils feel in your hand, and the range of different marks they make. Which tool do you feel most comfortable with?

The softer grades of graphite pencils most often used for sketching make fluid, dynamic lines that express spontaneity and movement. However, their lines can be prone to smudging. They can have a finesse about them that is missing from other mark-making tools, and they allow subtle shading effects to be included in the sketch. Harder grades of pencil are not usually the most suitable for sketching as their feint, fine lines do not encourage freedom of expression, and they are not easy for others to see, which rather defeats the object of using sketching to communicate ideas. They produce drawings that feel timid and mean. Ballpoint and fibre-tip pens are often a good choice. They make bold, strong shapes on the paper and express confidence. First-time sketchers are often hesitant about using pens and would rather use pencils, but pens should be tried before you decide which is going to be your preferred method of mark-making.

Do not be afraid to draw. This sketch may not be completely accurate (look at the groups of tables and chairs), but it conveys a feeling of what is intended and allows the designer to visualise the important aspects of the design. It gives something tangible upon which the designer can base further decisions.
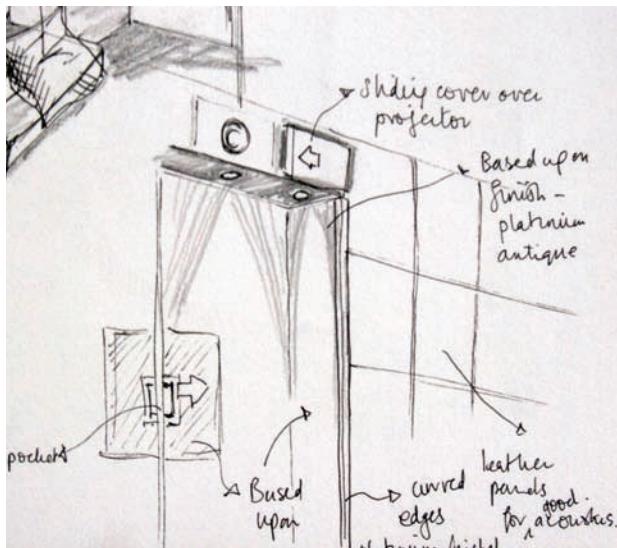
Contrast this perspective drawing with the previous sketch. This is a measured perspective that has been produced by a careful process of technical drawing. The designer has finished it with simple but effective line work which does not look overly finished, but it is a fundamentally different drawing and used for presentation of the design to the client.

Practical tips for sketching

Sign and date all of the drawings you make in your sketchbook, from the very first seminal drawings to those that have developed the design in greater detail. This is helpful when you are reviewing your work, which, incidentally, it is worth doing every so often; a quick glance through old sketchbooks will remind you of ideas that were relevant to an old project and might also be adopted in current ones. More importantly from a business point of view, signed and dated drawings can prove to be a helpful tool should there ever be a dispute about the ownership of a design.

Get down on paper the first thoughts you have; don't dwell upon them before committing them to paper. Look at them, see their merits and problems, and sketch them again to see if you can make them better. Don't worry about constructional details if you are sketching pieces of bespoke furniture; they are important, but until your knowledge develops sufficiently you can consult cabinet makers for their advice on this aspect of your design work. Work with simple strokes, go over the drawing again and again, think about it or talk about it with someone else. At some point you will know that you have solved most of the problems, and have a good idea of how the design might work. You will then need to start more accurate drawings (on the drawing board or with CAD) to make sure the design works. When things are drawn accurately in plan and elevation or section, you may realise that your initial ideas are not totally practical, so further work takes place on the drawing board. This is another point where manual drafting and sketching is, for most people, an easier way of taking the design forward. As ever, there is no single fixed way of proceeding, but various techniques are available to the designer. Many designers take a sheet of tracing paper large enough to cover the part of the drawing that needs resolving, lay it over the drawing, and sketch alternative ideas on to it, using the existing drawing as a guide. As one sketch is completed, the paper can be moved across the drawing to allow others to be made, again and again until the problem is resolved.

These techniques for developing the design by drawing are used alongside an understanding of the following principles in order to create successful planning solutions.

Use any technique necessary to make your sketches understandable. Annotations are an important way of making sure that all ideas are understood and captured for future reference.

The addition of colour to a sketch does a great deal to help the visualisation process. It helps the designer to understand the implications of the decisions that have been made regarding the colour scheme, which should be considered during the design development.

Human dimensions and scale

The one common denominator that lies behind all space planning is people. Whatever the function of the space, whatever the scale of the space, people are going to be a part of it. If that is so, then it is right that we take time to understand how people connect with the world around them.

Careful consideration of human dimensions and scale helps to create a practical and inviting environment and is particularly important in public spaces, such as the restaurant here.

Design
development

**Human dimensions
and scale**

Proportioning
systems

Ordering systems

Inclusive design

Ergonomics

Ergonomics is about designing for people and their immediate physical needs, and as a starting point it uses anthropometric data that details the range and diversity of human dimensions. There are many books of design data that are potentially helpful, but interior design is a real subject, with practical problems and practical solutions; therefore it would be a mistake to rely on someone else's observations at the expense of making your own. For example, rather than working exclusively in plan and asking the question 'is the access adequate?' take steps to visualise the situation for yourself and use a tape measure to confirm the required dimensions. Visualisation of the problem could involve acting out a movement or action, creating a mock-up of your proposal by using props such as pieces of existing furniture, or using tape to measure out shapes of walls or pieces of furniture on the floor or against existing walls.

Always remember that you are an individual, just as the client is, so you may need to modify your measurements to suit. If you are designing for a large and/or indeterminate group of people, be aware of extremes of the population such as the very young and old. It is also important to think about volume in addition to area: the circulation space between two relatively low items of furniture can be considerably narrower than that between two items where one or both of them are taller, without the access feeling restricted.

Remember that ergonomics does not just cover size; it also looks at how much effort is needed to perform a task. Think about an everyday action such as opening a door. How easy or difficult this is will be a real indicator of the quality of a design. A hand taking hold of an object like a door handle is a fundamental connection with the space, and the experience that the user has will influence their perception of the building. How does the door handle fit the hand? Does it feel sturdy or not? Does it embody a feeling of quality or not? How much physical effort is required to turn the handle? Overall, does this simple experience of opening a door give a positive or negative message about the space? Even if the experience is a good one for you, how do you think it would be for someone who is 40 or 50 years older than you? Will they have a positive experience, or will the effort required of them be unreasonable?

If you are designing for one client, or a limited number of people, it might be appropriate to tailor the design solution to them closely, but this can exclude or disadvantage people who may subsequently use the space. As ever, there isn't a right or wrong answer to this problem, but careful analysis should lead to a conclusion as to which approach is most appropriate.

Proxemics

The way in which we interact with other people is an expression of their status within our social group. Proxemics is the term used to describe the study of the way we interact with others. We keep a distance between ourselves in interpersonal situations that is an expression of various cultural and social factors.

The anthropologist Edward T. Hall described the relationship of distance to status. He divided the relationship between status and distance into four categories:

– Intimate Space, where we embrace, touch or whisper.

– Personal Space, the next smallest zone, which we reserve for conversation with close friends or family.

– Social Space, an intermediate zone, which allows for more general conversation and interaction with those who we may consider as friends or acquaintances.

– Public space, the largest zone, which accounts for all other interactions with people.

Hall defined these zones by measurement, but there is considerable variation in the size of these zones by culture, gender and individual preference. We are innately aware of the effect of proxemics; most people feel uncomfortable in a lift or elevator with other people that they do not know, an effect more pronounced when it is full. Though not as extreme, the same feelings will be experienced in any space, and so it is incumbent upon the designer to consider how these feelings can be moderated and allowed for. Providing more seats than are expected to be required in public spaces should ensure that anxiety about proximity to strangers is kept to a minimum. Try to put yourself in different situations and imagine how you might tackle them through your planning solutions, remembering that the client's reaction to a situation may not be the same as your own.

Proxemics are a particularly important consideration when designing public spaces. The small grouping of chairs and tables provide everyday reference points that help the user to make sense of the space, and navigate it with confidence.

Scale

Measured (or mechanical) scale is the correlation between the actual size of an object and a standard system of measurement. Visual scale is a judgement we make about the relative sizes of objects, and is not related to drawing scale described in the previous chapter. We are constantly and subconsciously comparing elements of the visual scene before us – is this chair small or large in relation to that one? Is that doorway small or large compared to the wall where it is positioned?

Human scale takes this desire to compare a stage further as it looks at the relationship between the dimensions of a space or object and their fit with the proportions of the human body. When something is scaled to fit or work easily with the human body, it can be said to be of human scale – examples could be a kitchen worktop or a flight of stairs. Sometimes buildings, furniture and other elements of interiors that we encounter are deliberately sized in opposition to the human body to provoke a response from us. Large spaces induce a sense of awe and wonder through their size, for example, but taken to extremes this mismatch of scale could leave us feeling exposed and vulnerable. On the other hand, small spaces could feel welcoming and protecting, or they might feel claustrophobic.

Design development	**Human dimensions and scale**	Proportioning systems	Ordering systems	Inclusive design

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The standard kitchen unit provides a proportioning system of manufactured sizes. Here, the units define the small seating area in this kitchen as being two units wide. The dimensions of the cabinets are obviously repeated in other parts of the kitchen design, lending a sense of unity to the whole.

Proportioning systems

Proportion is the relationship between one part (or parts) and the whole. It is the relationship between the parts of a whole that has been subdivided, of the vertical to the horizontal, the width to the depth, or the height to the length. It tells us whether something is thick or thin, wide or flat, tall or short. Proportion exists within an object (the relationship between the height to the width of a table, for example), or as part of a group of objects. The brain naturally sees some proportional relationships as being more attractive than others, and we have discovered or invented many different proportioning systems to define and control proportional relationships as a result. Some of these systems are recent inventions; others have been in use for centuries and were well known to architects such as Andrea Palladio, who said that proportion is 'harmony for the eyes'.
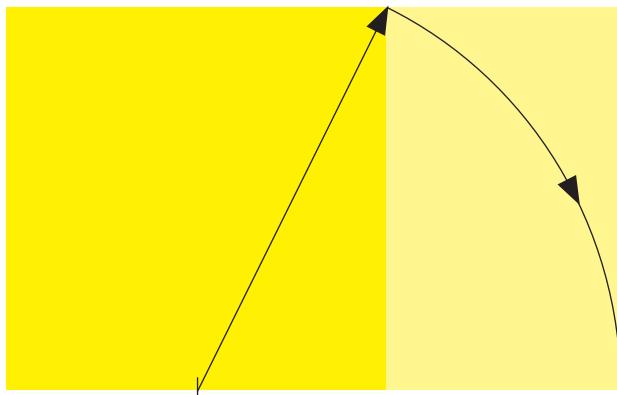
Proportioning systems can be very helpful to the designer, but however comfortable it can feel to design with the authority of an established system to govern design decisions, the system used should not be held as sacrosanct. Throughout the design process the designer needs to remain self-critical, and if the results of applying a particular proportioning system do not add anything to the design, then it should not be used purely because of a dogmatic belief in its inviolability. When Le Corbusier's assistants were struggling to apply the sensibilities of the Modulor scale (Le Corbusier's own creation, see page 94) successfully to a building, they asked the architect what they should do. He simply said, 'if it doesn't work, don't use it'.

Proportioning systems exist to establish a consistent set of visual relationships between the parts of a design. Like the other design principles, proportioning systems are a method of formalising the reasoning behind aesthetic decisions. Their implementation helps to unify and harmonise a set of disparate design elements, and so produce satisfying visual arrangements of building elements, furniture, accessories and so on. Some of the most well-known proportioning systems are described here.

Golden Section (or Golden Ratio)

Mathematically, the Golden Section is defined as the ratio 1 : 1.618. It might look mundane, but it is a ratio that surprises because of its universal popularity (it is seen by many individuals and cultures as a harmonious relationship between two unequal parts, and it is one that is found (at least approximately) in many instances in the natural world. A rectangle drawn with the length of its sides in accordance with the golden section has been used many times in art and architecture as the control for the proportions of the facade of a building or the composition of an artwork.

Golden rectangles are easily constructed: from the midpoint of one side of a square, draw a line to the opposite corner of the square. Use this as the radius of an arc, which can be struck from that corner until it intersects the extended side of the square. The point at which the arc and the extended side of the square meet defines the long side of the Golden Section rectangle (see diagram).

'My own' ratio

It doesn't follow that you must use a recognised proportioning system to help create your design. You can create your own regulating dimensions. Whatever they are, repeated use throughout the visual composition will provide unity and strength to the design. You might choose, for example, to create built-in furniture using a standard panel width of 450 mm with a shadow gap between panels of 5 mm. This standard size (or multiples of it) could be used to describe the entire visual identity of the piece or space that you create. Your design work can be aided by drawing, at scale, a grid based on these dimensions over which you can place tracing or layout paper. It is then very easy to sketch ideas, and check the feasibility and practicality of them, which is all part of the development of the design.
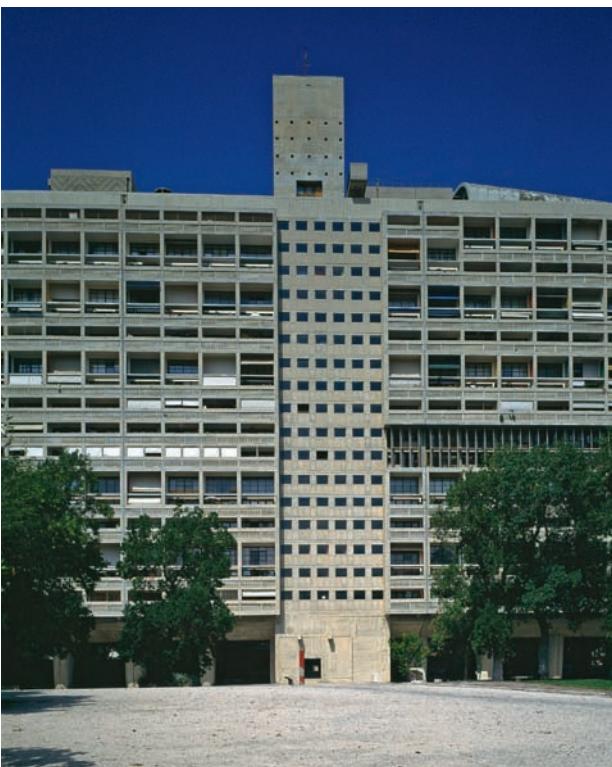
The Golden Section rectangle is relatively straightforward to construct and can be used to regulate the proportions of many elements of a design.

The Ken

The Modulor

A system developed in Japan, the Ken is still used to define room sizes in houses built in the Japanese tradition.
The system uses the traditional floor mat, the tatami, as the basic unit. The mats are usually standard sizes of 90 cm by 180 cm, though there is some variation depending upon the region of Japan from which the mats originate. Rooms are sometimes defined by the number of mats that cover the floor area. For example, tearooms are often four and a half mats in size, whereas shops used to be five and a half mats. Because it is based on a standard size of mat it is an absolute measure, not just a proportion. There are rules and traditions that govern the patterns in which the mats can be laid out. The mats are never laid in a simple grid pattern, and are arranged so that no more than two corners meet at any point.

The Swiss-born architect Le Corbusier developed his own proportioning system, which he based on three main measurements derived from the human figure, though it also draws heavily on the Golden Section and the Fibonacci numbers (see page 95). The system has many other measurements that originate from the three main ones, and all of these measurements were used to define elements of a design, from the facades of buildings, through elements of the interior design, to the dimensions of sofas and chairs.

Use of the Modulor in Le Corbusier's Cité Radieuse / Unité d'Habitation in Marseille, France.

Manufactured sizes

This is a very practical proportioning system. It uses the sizes of ready-made materials to define the ratio of width to length. For example, plywood is typically supplied in sheets 1200 mm × 2400 mm*, and these dimensions (or multiples of them) could define the size of details made from the material, such as wall panelling. Using manufactured sizes means that the use of materials is very efficient.

*The quoted sizes might seem unusual but they are the metric approximation of the imperial standard 4′ × 8′, which is often used in the UK. Sometimes a more precise conversion of 1220 mm × 2440 mm is used.

Fibonacci numbers

This series of numbers has been known for centuries, and was first described in the West by Leonardo of Pisa (also known as Fibonacci) in 1220. The sequence begins with 0, followed by 1. Each subsequent number is the sum of the previous two numbers.

Like the Golden Section, it appears in many instances in the natural world. A sequence of two, three, four or more consecutive numbers can be drawn from any point within the series and used as regulators in a design. For example, drawer fronts often look well proportioned if the height of each drawer (from the bottom to the top of a cabinet) gets smaller, so a designer might choose to proportion the drawer heights in the ratio 377 mm to 233 mm to 144 mm.

0 / 1 / 1 / 2 / 3 / 5 / 8 / 13 / 21 / 34 / 55 / 89 / 144 / 233 / 377 / 610

Fibonacci numbers appear in many instances in the natural world. A sequence of numbers from the set can be used to regulate a design.

Ordering systems

Axis

If proportioning systems exist to help us define sizes and ratios, ordering systems are there to help us collate a visually attractive three-dimensional composition using the building and all that we are placing inside it. It will involve manipulating the existing and proposed elements, and is primarily concerned with the aesthetic, so judgements about the relative importance of this and the practical side of the design will need to be made. The desire for a strong aesthetic solution may sometimes demand that an element is added to the overall composition that has no practical purpose within the scheme. When this is the case, the designer should not underestimate the power and importance of the aesthetic and should be prepared to do what is necessary for the integrity of the design. Application of ordering systems usually means that the designer's judgement will be used to decide at what point the optimum state is reached within the composition. This is one of those difficult-to-learn design issues where there is no right and wrong, so it is important to try out different options (by drawing or other means) to ensure that the most favourable solution has been reached.

This system uses an imaginary line to organise the whole or parts of the space. It is usually applied to the plan view of a space, but could equally work in elevation. The organisation of elements about the axis may be symmetrical or asymmetrical (this is explained later).

The axis created in this room by the long dining table flanked by several chairs is reinforced still further by the placement of the light fittings over the table. The light fittings fix the position of the table, but add such a strong visual statement such that any perceived loss of flexibility is more than compensated for.

Balance

Each interior element has different properties – form, surface (texture), colour, size, for example. These need to be considered and arranged so that they balance with the same properties of other elements. The visual arrangement should be stable. This does not mean, though, that all things should be equal in size or placement, nor does it mean that the final composition will feel static. It is quite possible for the arrangement to be balanced and dynamic at the same time. There are different types of balance: symmetrical, radial and asymmetrical.

Symmetrical balance works about an axis, and suggests a mirrored arrangement of elements. Radial balance works around a centre point or datum. Asymmetrical balance refers the state of visual equilibrium achieved when elements of varying size, shape, colour and so on are arranged by careful consideration of their properties. More specifically, asymmetrical balance requires that strong visual elements are balanced by other less strong elements. Larger areas of more neutral colours may balance small objects or areas of strong colour, for example. The careful distribution of 'negative space' between the elements aids the composition.

This hotel lobby in Chelsea, London, has gentle groupings of furniture that in no way mimic each other but which balance and create a convincing and harmonious whole. By using smaller groups, the space is broken up in an effective way.

Datum

This system uses a point or a centre to arrange other elements of the composition. The datum could be an actual object or feature within the building structure and therefore visible, or it could be implied simply by the arrangement of furniture or other elements.

In this beautifully restrained residential interior, the rich tones and sensual curve of the piano provide a compelling focal point to the composition, its shape highlighted by the highly reflective finish.

Harmony

Whereas balance seeks to achieve a visual congruity by careful placement of items that may not share properties of shape, colour and so on, harmony seeks to achieve a similar congress of parts, but relies on the careful selection of elements that do share some common property.

The asymmetrical positioning of the bust on the mantelshelf creates a moment of unexpected tension in this otherwise harmonious scheme but avoids the more likely and obvious central placement.

Unity/variety

Emphasis/dominance

Remember that the principles of balance and harmony are just that; they are definitely not about uniformity. In all cases, we are talking about objects with numerous and multi-faceted properties. It is possible to unify through a common property (material, colour, texture, shape, location) and still retain variety in other aspects, generally leading to a more interesting design solution that avoids sterility.

A feature or element that is emphasised by some means becomes a focus for the space. Focal points give visual interest. They provide a point on which the eye can stop and take stock of the visual environment. As long as they are not too abundant, focal points describe a path that the eye can follow around a space, giving sense and order to an interior. Emphasis is often articulated through size, colour or shape, and this may be exaggerated to an unexpected degree to achieve emphasis. Placement of an object is also used for emphasis. Objects can be positioned at the end of an axis, at a datum, or they may be placed in opposition to the prevailing grid.

The designers have played with ideas of harmony, unity and variety in this youth hostel cafe. The same style of chair is specified in different colours and the simple shape of the chair echoes the regular lines in the graphic print of telephone boxes behind.

A contemporary bedroom that uses simple forms could be bland. However, the careful choice of materials adds interest, and the simplicity of the whole is counterpointed by the chandelier, which provides a dramatic focus for the space.

Rhythm/repetition

Rhythm naturally makes us think of music, or rather the division of a musical piece into a regular, repeating, ordered pattern of sound. Rhythm in visual design has a similar effect. It refers to the use of repeating patterns, shapes and forms, which are recognised by the viewer and interpreted as an ordering influence on the space. Simple rhythms can be created by repeating features such as furniture or windows, and more complex and subtle rhythms can be promoted through the similarity of colour, size, and shape and so on. Rhythms can build in layers with simple 'bass drum'-like rhythms of larger elements augmented by more subtle 'hi-hat' rhythms – for example, a pattern applied to a surface. Rhythms created in one medium can be echoed in another. Although we may only pick up on rhythms in a subconscious way, they provide visual measurement and punctuation of a space, the effect of which is to animate the space and to help it flow.

Repeating rectangles and squares throughout this room give a strong rhythm to the space, which is almost syncopated because of the adoption of numerous colours, textures and sizes for the shapes. Fireplace, mirror, bookshelves, books, lampshades furniture and photographs all join in.

Circular rhythms generated by the three mirrors are in harmony with the tap and shower fixings, and contrast attractively with the regular and ordered pattern of mosaic tiles and rectangular rhythm of wash basin and stand, and the windows. The fact that the mirrors are of differing sizes helps the overall effect.

|||||
Design
development

|||||
Human dimensions
and scale

|||||
Proportioning
systems

▐▐▐▐
Ordering systems

|||||
Inclusive design

Alternating horizontal and vertical staircase elements create a familiar and reassuring rhythm that is gently bolstered by the use of a uniform material (steel) for the handrail, balustrade and stair edging detail to create a powerful but discrete composition. Hard edges are visually softened by the proximity of the books.

|||| **Thinking point**

Zoning

If the functional requirements of the brief are such that the space will play host to more than one specific activity, the first step to achieving a planning solution will be to look at the zoning of the space. This assessment will show which functions fit best in which parts of the space, and it should be conducted in very broad terms, without any reference to specifics of furniture dimensions. Different zoning layouts should be tested, and by compiling lists of strengths and weaknesses for each zoning option, it should be possible to identify a preferred zoning proposal. This will then be taken as the basis for more detailed planning.

For the next stage, the designer will attempt to fit furniture to the zoning layout. One of the easiest practical ways to do this is to use templates (scale representations of the furniture), which can easily be moved about the plan to try out planning options. Reference should be made to ergonomic requirements and the design principles. As soon as viable planning solutions begin to emerge, the designer will need to consider the three-dimensional implications of the two-dimensional plan by making simple drawings (sketch elevations, sketch axonometric, isometric views or sketch perspectives) using the proposed furniture layout. Despite being sketches, if they are carefully drawn they will give a strong indication of the effectiveness of the proposed design. Decisions can begin to be made about the balance of the composition and, if necessary adjustments can be made to improve aesthetic or practical aspects of the work.

It is probable that initial selections of furniture that work with the overall style of the project will already have been made by this stage, and the dimensions of these pieces should be reflected in the planning options considered. However, it is vital that the designer remains flexible throughout the planning process, and so it may be necessary to source new pieces of furniture if the planning shows that the original selections are inappropriate in terms of size. Revisions to the plan during space planning do not indicate any failure on the part of the designer; rather they show that the process is working as it should to produce the best possible solution. It is important to ensure that the balance of practical and aesthetic is carefully considered, as planning naturally tends towards the practical, sometimes at the expense of good aesthetics. The evolving design should be continually questioned and, where necessary any problems should be resolved by further planning and visualisation.

Inclusive design

It is human nature to imagine that, to a large degree, the abilities (and therefore the experiences) of others closely mirror our own. If we have no difficulty getting around in our day-to-day use of buildings, then we expect that others will have a similar encounter with the buildings that they use. Given a little thought, it should be obvious that many people will actually have a very different experience of a building to that which we have. Not to consider their needs means that we potentially exclude them from the spaces that we design, which is not a moral (or legal in many countries) position that designers can justify. Inclusive design tries to understand the needs of all potential users of a space, and to provide for their needs. It ensures that people are put at the centre of the design process and responds to human diversity in a positive way. It provides the individual, whatever their abilities, with freedom, dignity and choice about the way they live their lives and it delivers spaces that retain flexibility of use.

The range of people who might experience problems using buildings is wider than many would appreciate. It does, of course, include those with disabilities (accounting for almost 20 per cent of the population), but it also includes senior citizens, parents with young children and people carrying heavy or awkward items. All these groups may have difficulty in negotiating entrances or navigating spaces that ambulant people take for granted. Visual or hearing impairments and learning difficulties cause problems for some, while others face problems because of a lack of manual dexterity.

Addressing these issues may be achieved through research into the problems and solutions available, or it might be appropriate to use access consultants or other specialists who can advise on the practical measures that should be considered.

Good inclusive design will make the planning solutions that are developed better for everyone, and it will always make sense to build inclusive solutions into a design from the very beginning of a project rather than retrospectively. When aiming for the highest standards in all aspects of design, it can be challenging to find aesthetically rewarding solutions to some issues. There is, however, a great deal of scope for developing bespoke solutions in some situations. Manufacturers of kitchen and bathroom equipment are beginning to see the opportunities for incorporating inclusive solutions in their designs, but it is still incumbent on the designer to consider the potential issues and provide fully resolved designs that meet the needs of a diverse population.

Accessible design does not need to be brash or visually clumsy to meet the needs of all users. The form and positioning of this reception desk at the Park Navi hotel in Mumbai, India, means that its location is discernible to those with visual impairments. The attractive lighting also enables the faces of the receptionists to be seen easily by those with hearing impairments.

6 The human interface

In earlier chapters, we have looked at the creation of a successful three-dimensional design for a space. What we have not looked at so far is the decorative scheme. The term is actually slightly misleading; the dictionary definition of the word 'decorative' suggests that decoration by itself is shallow and vacuous, with no useful purpose. In interior design this is not so as it is the decorative scheme that adds those elements that complete the sensory experience. It adds texture, light and colour. It can help bind the different elements of a design together, or it can introduce interest through variety. The selection of furniture, finishes, fabrics and hard materials is another major opportunity for you to make your mark on the project.

This chapter looks at the different aspects of the decorative side of interior design and focuses on the user's experience of the space – particularly the way that sight, touch and sound define that experience and are the prime communicators of the designed environment.

Materials and finishes

Every single part of an interior has a job to do and it needs to be fit for purpose – but each part also has aesthetic properties as well as practical ones. The practical considerations may well define our choices to a great degree, but there will usually still be some flexibility in that choice, and this is where our imagination and creativity can be used to good effect, particularly with regard to our choice of surface treatment.

The reflective surface and depth of colour create a mysterious and intriguing feel to this table by Based Upon. The slightly imperfect handcrafted feel of the piece adds to its allure.

Selecting materials

What is so special about materials and finishes? Why do some designers find the search for new and innovative materials such an exciting part of the job? It is because materials have the unique ability to help us connect at an elemental level through touch and sight with the intent and soul of a project. The look or feel of a material can communicate mood and emotion in a very special way. Natural materials (wood and stone, for example) suggest a certain quality and honesty about the design, whether or not the materials are expensive. In addition to this emotional response to materials, the designer needs to consider the practical aspects of the material choice, but this is another instance where it is the designer's responsibility to find the balance between practicality and aesthetics.

Precisely which materials should be chosen will be guided very much by the feeling that the designer wants to create, and it is the concept that will provide the lead for this.

When working through the practical needs of the design solution, it is unlikely that you will find that there is just one single material that will be suitable. There may well be two or three materials that could be used equally successfully, so you have the opportunity to work through the different options and decide which material will create the best aesthetic impression.

A diverse but harmonious selection of materials that beautifully express their natural features provide a richness to the scheme that in some cases obviates the need for superfluous decoration. Honest materials that are simply expressed are a delight to see and touch. These qualities may not be readily apparent in the planning stages of a project, but they should be considered as early as possible if their impact is to be maximised.

Core materials
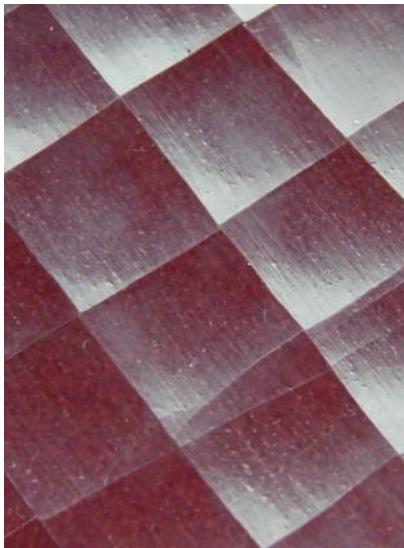
While a countless number of individual materials could be specified, the core material categories to be considered for their decorative as well as practical properties are:

Stone provides a real connection to 'earth', and has an open, honest quality. Often limestone, slate, granite and marble are the first choices of stone, but even within these basic forms the variety is infinite. Surface finishes show off natural pattern to best advantage. Make full use of the expertise of suppliers when judging which material is appropriate and how it can be shaped, fixed and finished.

Wood is another elemental material that connects us to nature. Broadly speaking, wood may be supplied as solid timber cut straight from a felled tree, or it may be in the form of timber products such as plywood and MDF. Timber products (sometimes called panel products) can have many different surface treatments applied (real wood veneers, spray paint, powder coating) but their use can feel 'cheap' and dishonest to some clients. Wood has a warmth and beauty that is hard to match.

Metal finishes can be supremely practical in some situations and they can also be very decorative. Different types of metal have different visual qualities that the designer can exploit. It gives an interior a sense of modernity, strength and usually also a masculine edge. Some surface finishes are not as durable as might be imagined, so careful selection is needed. Fabrication of some items can also prove costly and time consuming, and it pays to work closely from the outset with the people that know this material well.

As long as the proper precautions are taken, there is no need to fear the use of glass in interiors. It can be high cost but the technology allows the use of glass for semi-structural elements that can look stunning and which provide the perfect foil to other materials specified within a scheme. Again, the designer must make use of the technical expertise of the supplier and be prepared to be guided in its application by their experience.

Specialist finishes add a distinctive feel to an interior scheme. Commissioning pieces from craftspeople allows the designer to inject a scheme with a unique element.

A plain metallic surface that has been simply engraved to create pattern and texture. Finishes such as this can be used in many applications – they can be used in furniture manufacture or applied to walls, for example.

Architectural metal mesh is a relatively new material that has many decorative and practical possibilities. The meshes come in different weave patterns, and many can be wrapped around a structure or framework.

Beautiful and simply expressed materials are powerful tools for the designer and can evoke all sorts of responses in the viewer. Here, the rosewood face of a peninsular kitchen unit meets the terrazzo floor. A small separation between the two materials allows the inclusion of concealed lights, making the unit appear to float over the floor.

Concrete, an apparently utilitarian and coarse material, is made delicate by this engraved floral pattern. Any discord between our expectations of a material and the reality that we come across peaks our interest and fascination with the material. Concrete is a material with lots of possibilities that can be used in various interior applications.

The lower floor of this London restaurant is intended for private functions and hence is more moody and intimate than the ground floor above. The brass screen to the staircase picks up the flickering flame of the mirror-framed fireplace that is the focal point of the room. This is a good example of a rich but well-balanced palette of materials.

Textiles

Humans have used textiles (materials composed of fibres) in various forms for thousands of years. The majority of textiles are woven, and the earliest evidence of weaving comes from impressions of textiles, basketry and nets made on small pieces of clay that date back 27,000 years, though weaving on a practical scale developed around 5,000 years ago in Egypt.

Within interiors, textiles are generally apparent in the form of soft furnishings and window treatments. Although alternatives to textiles do exist, they are still the obvious choice when a flexible material is required for furniture manufacture or to provide control of light at a window. Their flexibility and pliability mean that they are comfortable in use and easy to work with. But textiles are not just a practical solution to a need; they introduce a tactile quality that adds another dimension to the palette of materials associated with a decorative scheme.

They can do great things for our senses; they catch and turn light, and they create dramatic shifts of light and shade, introducing rich texture as they hang in folds. Fabric can be used within the scheme to tell a story: shimmering surfaces of crushed velvets stir memories of grass waving in the breeze, while almost invisible sheers tell a story of soft mist on a summer morning. Fabric can be a way of capturing delightful experiences from real life, and can allow those moments to become a part of the organised composition of an interior scheme. They have a vital part to play in communicating the mood that you want to capture.
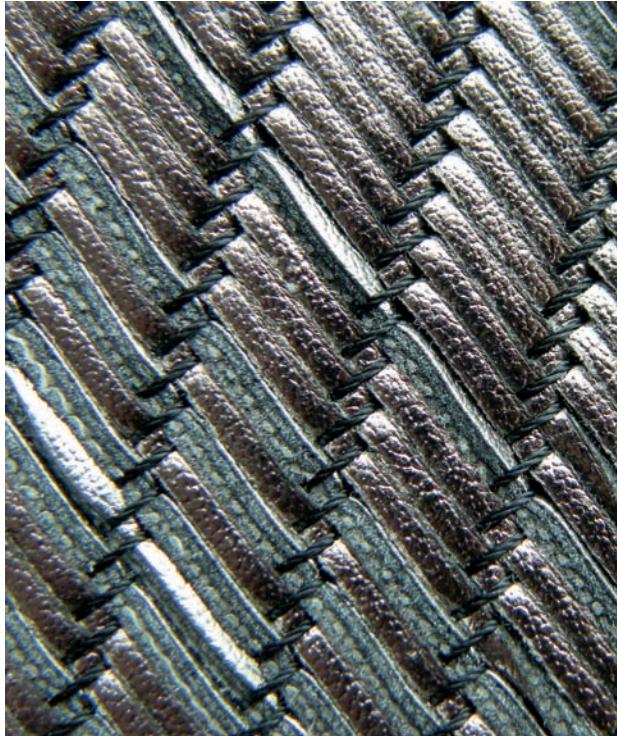
For practical purposes, woven textiles (fabrics) are categorised by the origins of the fibres that make the yarn from which they are made:

Natural fibres are derived from vegetable and animal sources, and include fabrics such as cotton, linen (from the flax plant), silk, wool and horse hair. These are fabrics that look and feel quite different to one another, but generally they resist dirt reasonably well. Their natural origins make them popular with designers.
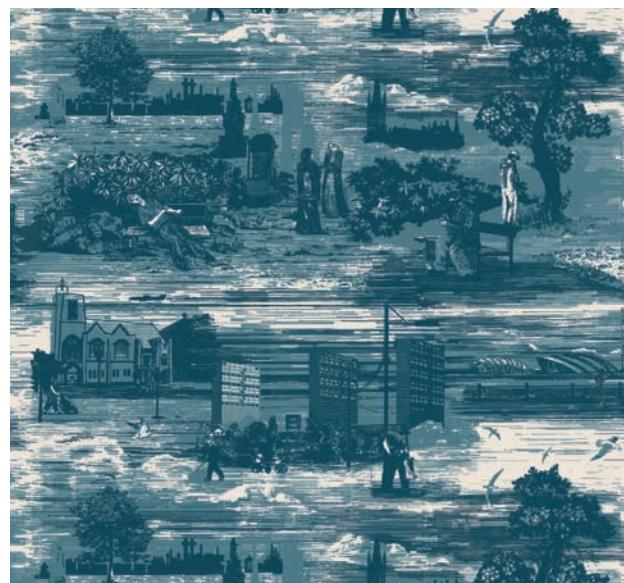
Man-made fibres are manufactured from processed natural sources. Rayon, acetate and viscose all come from cellulose obtained from wood, although they are all produced using slightly different processes. They were developed to imitate silk and for this reason they are still in widespread use. Natural silk has several drawbacks and these substitutes perform better in most respects.

Synthetic fibres are derived entirely from chemicals, often petrochemicals. Nylon, polyester and acrylic are all examples. Although practical fabrics, they can pick up dirt easily. The manner in which the fibres are woven will control the look of the fabric to a large extent. The names canvas, satin, twill, and damask all refer to the method of weaving and have become the accepted name of the fabric that results. These types of weave can introduce pattern into the fabric, though pattern may also be applied after weaving by printing or sewing.

Textiles can add an interesting dimension to the palette of materials used in a decorative scheme. Here, a contemporary design by Timorous Beasties makes reference to the past. The fabric styles itself after the printed cotton toile de jouy that originated in France 250 years ago, but the typical bucolic scenes of the original are replaced with gritty urban alternatives.

It is possible to find unusual and interesting textiles that catch the imagination. This cut and stitched leather is polished with a pearlescent finish so creates a beautiful surface that is both highly textured and reflective. This material would not be as hard-wearing as conventional leather, but could still be used decoratively.

Textiles can easily be used to revitalise old pieces of furniture. The carved wooden frame of this chair has been repainted with a silver finish and upholstered with leather that shows an unusual sheen. The form of the chair is traditional, but the materials used have a contemporary edge. Revitalising old pieces in this way is also a good environmental choice.

The design process   Understanding   Understanding   Understanding   Organising   **The human**   Sustainable design   Communicating
                      the project   the space   building structures   the space   **interface**   design

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Sourcing materials

One skill that new designers need to develop is that of sourcing. Essentially, sourcing is searching for the right supplier to provide the materials or products that you need, but there is more to the task than first meets the eye. One of the issues could be termed exclusivity; that is, finding materials that are new and inspirational for the client. This will generally mean looking at specialist suppliers that are geared to dealing largely with designers and architects, rather than the general public. It doesn't necessarily follow that exclusive must be expensive, but this will often be the case. For projects with smaller budgets, the designer may need to be ingenious in their sourcing and use of materials if the feeling of exclusivity is to be maintained, but it is still possible to create memorable interiors.

Sourcing with a purpose – that is with a definite idea in mind about what it is that is required – will make sourcing expeditions efficient. It is still good practice to keep your mind open for the unexpected find though. Try to think how it might be possible to introduce unusual materials or common materials used for uncommon applications.

Sourcing begins with the concept. Ask yourself what ideas you are trying to communicate, and what materials reinforce those ideas? For a city loft that is meant to mirror the professional and sophisticated outlook of the owner, brushed or polished metal, glass and leather might all be appropriate. In a home that is intended to provide a sanctuary from the bustle of the outside world, sheer fabric, mother of pearl and unfinished timber could all be good choices.

When looking for materials rather than specific items of furniture, it is possible to source different materials that support the concept without actually knowing at the time of sourcing where those materials will be used. Once a selection of materials is assembled, it can be edited, and materials assigned to different tasks within the scheme, all the while making sure that practical considerations are being taken into account. For example, looking back at the previous example, the brushed metal finish that would be so appropriate in our city loft could be added as a bespoke treatment to a table top, to shelving, or it could be used more daringly as wall cladding or flooring.

Timescales during projects can be short, so it will help to be continually on the lookout for new and interesting ideas that could be used at some future date. While many designers now source via the Internet, there is still something to be said for the old practice of maintaining a product library in the form of printed brochures: information and samples that are categorised and filed away for reference. The product knowledge gained by looking at magazines and requesting information from manufacturers and suppliers will equip the designer with an easy source of ideas for use in projects.

Careful sourcing of furniture and materials has created an eye-catching composition that combines the practical storage offered by the table with interesting material choices that add pattern, colour and texture to the scheme.

The decorative scheme

If sourcing is the search for raw materials, then the compilation of the decorative scheme is the means by which all the raw materials are brought together in consort for the final performance.

When creating a decorative scheme, the novice designer will usually direct their first thoughts towards colour. It is, of course, a vital aspect of any scheme, but it is only a part. In fact, there are three main components (or properties) of a scheme: colour, texture and form. So what is a successful scheme about? It has a job to do; in addition to providing a comfortable environment for us to inhabit, the scheme is the vehicle by which the original interpretation of mood that came from the design analysis and concept are carried into the real world. How well that mood is interpreted will depend on how well the three properties have been blended in the final scheme.

Part of the task that a designer faces is the need to explore ways of introducing all three components. If a successful scheme is a reflection of the designer's original concept, then returning to that concept will provide clues as to how texture, form and colour can work together to convey mood. When discussing the use of concepts in chapter two, it was suggested that abstract interpretations of the ideas of form, texture, colour, style and mood expressed in the brief were the best way to construct a concept. This gives the designer real freedom to find interesting materials or furnishings that pick up on these references, or even to create solutions of their own by commissioning bespoke items.

Small decorative touches such as the faceted glass pieces that hang from this lamp all have their part to play in the larger scheme. It is important to determine if the scheme is deficient in any way by looking at the combination of finishes together on a sample board or similar, then adding colour, texture or form as appropriate.

Texture

Of the three elements, texture is the one that is most often overlooked, but it is vital in providing visual and tactile interest as it supports the other elements in communicating the feelings generated by the concept. In this context, the word texture is used in its broadest sense: it covers properties such as solidity, reflectivity, translucency and transparency as well as the physical surface texture or form of a material. Patterns within the materials are often allied to the innate texture, though this relationship is sometimes modified if finishing processes (polishing or sanding, for example) are carried out. Texture is often about light, or what the material does with light. Does it create shadow and highlight? Does it filter the light and modify it in some way?

Texture can be found in all manner of guises; it can be the roughness of a piece of chenille fabric or the natural undulations of unfinished timber. It could be the lustre of brushed steel or the combination of reflectivity and transparency captured by a sheet of glass. Texture by itself is not enough, though; it is the variety of texture that is so important in stimulating interest in a scheme.

Monotony of texture will produce a scheme that looks and feels bland, uninspiring and ultimately unsatisfactory, even when there is variation in colour and texture. Many assume minimalist schemes to contain no colour (other than white) and texture, but this is far from the truth. Truly minimalist interiors such as the Barcelona Pavilion by Mies van der Rohe or the Nový Dvůr Monastery by John Pawson show restraint in the palette of materials used, but a real diversity in the texture of the materials.

To prove to yourself just how important texture is, look carefully at some illustrations of interiors and assess the impact of texture. When you find an illustration of an interior that you particularly like, ask yourself how the major instances of texture are expressed within the scheme and what you would feel about the interior if the variety of texture was not present.

Materials
and finishes

**The decorative
scheme**

Acoustics

Furniture

Colour

Light

Texture is vital to providing visual and tactile interest
to a space that could otherwise be bland and
cold. Although the tiles used here are still eminently
practical, the embossed pattern provides relief
from the uniformly reflective surface of tiles and
sanitary ware.

Form (or shape)

Form is probably the most obvious indicator of a particular style within a scheme. Furniture declares the period from which it originates through its shape and other cues of pattern and surface decoration. For example, the art nouveau style which made its presence felt at the end of the nineteenth and start of the twentieth century was characterised by organic, curvilinear shapes that are readily identified with that period even today. In contrast, the prevalent style throughout the 1920s and 1930s, now known as art deco, expressed the style of the times through regular, geometric shapes and faceted three-dimensional forms. Popular motifs were the starburst and the ziggurat. Anyone wishing to recreate the period look within an interior must take note of the dominant forms of a particular style. Even when it is not the intention to overtly copy or recreate a particular period, use of distinctive shapes, motifs, glyphs and typefaces can all suggest a link to a previous era.

Pattern needs careful handling by the designer to ensure success. It is necessary to visualise how the pattern will appear in the finished space, paying particular attention to the scale of the pattern. Pattern that seems attractive and appropriate when looking at a small sample may be lost when applied to large surfaces. Conversely, large pattern can seem overwhelming and inappropriate when viewing small samples, but when seen in situ, those problems can disappear. The designer should use drawing or other visualisation techniques to ensure a good understanding of the likely effects of pattern before specifying.

Here, form and pattern are used to strengthen the design scheme. The strong lines exhibited in the artwork are echoed by the pattern in the sofa fabric, and even through the form of the standard lamp.

Materials
and finishes

**The decorative
scheme**

Acoustics

Furniture

Colour

Light

⫿⫿⫿⫿ Thinking point

Constructing a scheme

The use of sample boards as presentation tools is detailed in the following chapter, but the process of constructing a scheme will follow the pattern outlined here:

Collect as many sample materials as possible from suppliers. These should all connect with the concept in some way; colour should come from the palette suggested by the concept, and texture and form should also work in sympathy with the visual references suggested by the concept. At this stage, fabrics and hard materials do not necessarily have to be sourced for specific functions; it is more important that the designer has a generous number of options to choose from and it is not unusual to amass two or three times as many samples as will be eventually required. Suppliers who are used to working with professional designers and architects will usually be happy to provide their clients with free samples that are ideal for sample boards. These suppliers are aware that the designer needs to show their own client exactly what will make up the scheme, and will generally provide the samples free of charge. Try to represent all the surfaces and finishes that will be present. Pieces of board can be painted up using sample paint cans and even when specifying bespoke items, it is usually possible to obtain samples of the intended finishes from the manufacturer. If, despite all efforts, it is not possible to get physical samples, then photographs can be used. Photos are also helpful when showing materials that have large pattern repeats which might not be fully represented on the samples obtained. They should be used in conjunction with the physical sample, rather than instead of it. In countries that do not have a large established community of working designers it may be harder to get hold of materials, but they can often be sourced via the Internet from around the world.

Clear a workspace so that that it is possible to see the emerging scheme away from any distracting influences, and begin to assign materials to specific positions or functions within the scheme, making sure that they are suitable for the intended purpose. If there is more than one possibility, try each material in place and assess its success in combination with the other materials. As this process continues, some of the options will begin to appear as favourites, while others will edit themselves out of the scheme, simply because they do not work as well as others. These samples should not be discarded, though, because as the scheme develops and new relationships are established between the finishes, the emphasis in colour, form or texture can shift, and materials that once were cast aside could find a use again.

Arrange all the selected materials in a composition that roughly reflects their logical place within the space – flooring at the bottom of the grouping, ceiling finish at the top, and materials which would be adjacent to one another in the finished scheme placed in a similar relationship in the composition. In order to appreciate the effectiveness of the scheme as fully as possible, it is important to mimic the proportions of each finish relative to the others. This can be achieved simply by folding and taping fabrics or wallpapers, and by masking hard materials. If materials are not shown in proportion, the sample scheme is likely to look radically different to the installed scheme. Include all ancillary finishes (for example, paint colours for architraves, windowsills and frames) or, once again, there is a risk that the look of the sample board will be distorted.

From this point, it is possible to make an informed judgement as to the success of the scheme and, if necessary, make changes before any money has been committed to purchases. Working with sample schemes gives the designer the chance to experiment, and still be fairly confident of the result.

The design process | Understanding the project | Understanding the space | Understanding building structures | Organising the space | **The human interface** | Sustainable design | Communicating design

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Unadorned windows and highly reflective surfaces
give added strength to this boldly colourful scheme.

Colour

Colour is discussed later in this chapter, but it should be noted here that the power of colour within the decorative scheme is enormous. It is a great indicator of mood and our response to colour is experienced on a very elemental level. Often, though, colour is one area that individuals feel most insecure about. The worry can be that the client will reject the colour choices of the designer, and students often feel reluctant to impose their view of colour upon the client. Once again, the concept should be allowed to serve as the source of our colour choices. When a good deal of effort has been expended in evaluating the desires of the client and interpreting them visually in the concept, it should be possible to let that concept dictate the colour scheme, using not only the colours but using them in similar proportions, too. If these aspects of the concept are followed faithfully, along with ideas of texture and form, then it is almost certain that the finished scheme will capture and communicate the original intent of the concept.

Putting the scheme together

Finding colours, styles and textures that work with the concept may be the starting point, but the designer also needs techniques for assembling the scheme and checking that it is creating the desired effect.

Yet again, sketching is likely to play a part at this stage of the development of the design. Perspective sketches or elevations of the space can be rendered as simply or elaborately as desired, in order to assess the impact of colour choices. However, this alone will not be adequate to evaluate the subtleties of the ways in which different materials play off one another, and the nuances of other effects such as texture and reflectivity. The best way to do this is to create a facsimile of the scheme using the actual materials that are being proposed on sample boards. Sample boards are used to explain schemes to clients but they are also extremely important during the initial design stages because they provide the palette upon which the finished scheme is mixed and refined.

Acoustics

Acoustic experiences

Our brains use more than the senses of sight and touch to form their understanding of the environment that surrounds us, and one of the prime sensations that we experience and which becomes part of our response to our surroundings is that of sound.
In the same way that a film soundtrack is as important to our understanding of that film as are the visuals, so our everyday lives are informed to a large degree by what we hear and how that sound is modified by the local environment.

Imagine walking between the dense, close-growing trunks of fir trees in the forests of northern Europe or North America. The feeling of stillness and oppressive closeness of the surroundings is amplified by the muffled quality of the sounds reaching our ears. Not only is there an absence of loud noise because of the blanket of trees and the carpet of pine needles, but any sound that does reach us is flat and dead because of the acoustic qualities of the forest floor and the bark of the trees; irregular surfaces absorb the sound energy so that we only hear the sound that reaches us directly, with no echo or reverberation.
The sights and sounds of a location work in tandem to create our instinctive reaction to the place. By way of contrast, an indoor swimming pool will probably generate a very different response from us. Even without other people present, the sound of any movement that we make is augmented by scores of echoes, which combine to create a strident clamour, bright and brassy in nature. Add in the presence of other people, and the effect is magnified. People raise their voices, making still more noise, in an escalating battle to be heard.

So, the way that sound is experienced can add to or detract from our perception and experience of place, and as designers we have the tools to modify and control the acoustic properties of an interior. Opportunities exist to modify either the surface finish or form of a material in order to change its acoustic qualities and we might also be able to influence the construction techniques used. Designers should be aware of the ways in which this can be done, and should be prepared to make use of them or to seek assistance where appropriate to ensure that this important aspect of our experience of the space is not overlooked.

Where the acoustic properties of a space are critical to its function, it would be sensible to employ the services of an acoustic engineer. If necessary, the space can be surveyed in detail, and using dedicated software applications the expected acoustic performance of the space can be judged, and appropriate measures taken. This is most definitely the science part of acoustics. For a less critical application (which is likely to mean the vast majority of commissions that the designer is asked to work on), a good working knowledge of the properties of materials and the basic physics of acoustics should be adequate. This is where the control of the acoustic is more art then science, and it is well within the ability of the interior designer to manage this.

We hear sound as a result of sound energy that is transmitted as a series of vibrations. These vibrations are able to travel through air and through the various materials that we use to build and furnish the spaces that we live and work in. However, these materials do not all conduct sound energy to the same degree and through careful selection of materials we can reduce the impact of transmitted sound or modify its quality so that a more appropriate result is obtained.

Generous window treatments not only allow for easy control of light and privacy; they also make excellent attenuators of unwanted sound in this city apartment. Even during the day, they provide large areas of fabric that cover the walls, helping to deaden sound from passing traffic.

Controlling acoustics

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Controlling the acoustic qualities of an interior might involve one or more of the following:

– Preventing or reducing unwanted sound from entering the space.

– Preventing or reducing sound generated within the space from reaching other areas of a building, or the local neighbourhood.

– Planning space so that functions that are acoustically incompatible are separated.

– Changing the quality of sound heard within a space in order to modify the experience of the user of the space.

Sound that is either leaking into or out of a building can be dealt with by ensuring that windows and doors are fitted well. Windows can be upgraded to either double- or triple-glazed units, if appropriate, and simple measures such as draught excluders may help to a degree. If existing doors are to be retained, a carpenter should be able to make sure that they fit as closely as possible to the doorframe. If doors can be replaced, then upgrading the construction may help; solid hardwood doors perform more efficiently than other materials with regard to sound insulation.

The methods used in wall, floor and ceiling construction also play their part in the transmission of sound energy. Although the technicalities can be quite complicated, in essence, lightweight construction methods (such as stud partition walls) will not provide much resistance to the passage of sound, while more rigid construction (such as cinder block/breeze block) will absorb the sound energy to a greater degree. If construction using concrete blocks is not appropriate, then it is possible to introduce wall construction of reasonable acoustic performance by ensuring that the space between the outer surfaces is filled with mineral fibre insulation or a similar material. Though primarily used for thermal insulation purposes, these materials will also improve the acoustic performance of the wall. Employing methods of discontinuous construction will also benefit the acoustics. Here, the typical studwork that forms the framing of the wall and that provides a direct link from one face of a wall to the other is replaced by smaller timbers that do not bridge the gap from one face to the next. Thus, they remove the direct path by which sound can be transmitted between spaces. The addition of a sound-absorbing material such as sheep's wool insulation or mineral wool will reduce the transmission of sound still further.

While the preceding methods of acoustic control are practical, they do not allow much aesthetic consideration to be applied to the space. This only really happens when looking at interior surfaces and, as we have seen, there are two traits of the surface that designers can play with to produce the results that they want; surface texture and form. If echoes and reverberation occur when sound waves are repeatedly reflected between parallel surfaces, it follows that if the surfaces can be made non-parallel and non-reflective, then the source of the reverberation or echo will be removed, or at least reduced. This can be achieved in one of three ways:

Changing the orientation of one or more of the surfaces such that they do not lie parallel to one another, thus preventing the sound waves from being repeatedly reflected.

Changing the shape of a surface such that it is no longer flat (and therefore no longer able to easily reflect sound to another surface). Changes to shape could be large scale: surfaces that are convex (curved outwards) will disperse and diffuse the sound waves, whilst surfaces that are concave (bowed inwards) will focus them (sometimes this effect will be one to be avoided). Changes to shape could also be on a small scale: for example, a multi-faceted surface (such as timber slats) will serve to break up the sound waves.

Changing or adapting the material to alter its acoustic properties. Materials that are hard, such as ceramic tiles, will reflect sound much more readily than those that are soft or resilient, such as fabric. Where it is simply not feasible to substitute one material for another, it may be possible to introduce additional materials (for example, fabric hanging in front of a wall or below a ceiling) that will act to absorb sound energy and so modify the acoustic performance of a space. This will, of course, have implications for the decorative scheme, so it needs to be considered in relation to the other materials already existing within the scheme.

These decorative plaster tiles by Robin Ellis Design for Butcher Plasterworks, seen here in a restaurant designed by Claire Nelson, create a non-uniform surface that has positive acoustic qualities, as well as great decorative potential. The elimination of hard, flat surfaces helps reduce the reflection of unwanted sound waves.

Furniture

Furniture design

The design analysis undertaken at the beginning of a project should have identified the functions that the space needs to accommodate. With those functions in mind, furniture can be selected to fulfil the needs of the brief. But how should furniture be chosen? The answer once again lies in the concept. Let the concept be the guide when it comes to determining the style of the furniture. Ideas of both form and finish can be extracted from it, and sourcing for the furniture will then have direction and purpose. Having a clear idea of the basic look of a piece of furniture helps immensely as it is necessary to narrow the field to avoid being overwhelmed by choices. That said, it is also important to keep an open mind when sourcing. It is all too easy to miss a piece that would lift a scheme above the ordinary simply because of a fixed idea of what is required.

Furniture items may be designed as individual pieces, or they may form part of a larger collection. Pieces from a collection share common style traits, and it could naturally be assumed that sourcing such furniture will provide a strong visual solution. This is sometimes true, but generally only in spaces that work well with some dominant visual characteristics. It is usually best practice to work with furniture from different sources. The differences and individual personalities of several pieces sourced in this way will create a harmonious group that is relaxed, but that still conveys a strong sense of style. When designing with pieces that form a collection, the risk is that the overall look will appear contrived and somewhat unsophisticated.
This is another of the judgements that new designers will need to make for themselves, as each situation will have to be judged on its own merits.

Unusual pieces of furniture such as this seat provide real interest within the scheme. This piece, made of resin and finished to a high standard, is a collection of intriguing contradictions. The hard reflective surfaces and depth of colour catch the eye and are ever changing.

It is important that the design concept determines furniture style and not vice versa. This interior uses the classic Egg chair by Arne Jacobsen. Original pieces are valuable and usually treasured and the high cost of those that are manufactured under licence today means that they are looked after.

Free-standing and built-in furniture

Furniture can be categorised as either free standing or built in. Free-standing furniture is the most common. It is easy to place within a room, and is flexible as it can be re-positioned at will. However, it is not necessarily the most efficient in terms of use of space. Take, for example, a bookcase sited within an alcove. However carefully sourced to fit, a free-standing bookcase is unlikely to fill exactly the space that it occupies, and this means that the use of space is not as efficient as it could be. In this example, a fully stocked bookshelf also has the potential to be unstable. A built-in bookcase will fit the space exactly, with no awkward and inefficient gap around and behind it, and as it is attached to the wall structure, it is safer than the free-standing alternative. Built-in furniture can create a very considered look within a space. It is unique, so each installation will need to be individually designed or, at the very least, standard-sized elements will need to be put together with unique trims to match the size of the space. This is the approach often taken by the major suppliers of built-in furniture, but the whole piece can be a unique creation and it can be the designer that is responsible for creating the piece. Some designers will have a thorough knowledge of cabinet construction methods and so retain creative control over every detail of the piece, whilst others will work with cabinet makers and delegate responsibility for the technicalities of construction, retaining overall control of the look of the piece. Bespoke pieces of furniture allow for real freedom of expression within the design.

There is no reason why free-standing pieces should not also be commissioned especially for a scheme, if budget permits. Although probably more costly than furniture sourced from stock, within residential projects, bespoke items will usually acquire the status of a family heirloom and their individuality can provide a compelling reason for a client to agree to their manufacture. The designing and making of bespoke pieces is not to be undertaken lightly, but the furniture that results can be a very special answer to a need. As the car designer Ferdinand Porsche said, 'In the beginning I looked around and could not find the car that I dreamed of. So I decided to build it myself'.

Free-standing furniture is easy to place in a room and is much more flexible than built-in furniture. The simplicity of this chest of drawers allows the natural beauty of the wood to make its presence felt.

Colour

Colour is the brain's interpretation of the different wavelengths of visible light waves. The study of colour and our everyday experience of it is a mix of both art and science. Scientists, artists and philosophers have proposed different 'colour models' as they try to explain how colours work. These models look at attributes of the colour such as hue (the actual colour of something), saturation (how pure the colour is versus how grey it is), and brightness (how much white or black is a part of the colour). Using these parameters, most colours can be described.

A helpful tool for considering the relationship between colours is the colour wheel. It takes the linear spectrum seen when light is refracted through a prism, and joins the free ends to create a circle. Although this means that colours from opposite ends of the spectrum (red and violet) are now adjacent on the wheel, the effect is a seamless progression of colours from any one point on the wheel to any other point. While one colour model may be based on different assumptions about its primary colours to the next model, most are consistent in their placement of colour around the wheel. The wheel allows us to visualise and define colour harmonies; that is, collections of colours that work together to create a usable scheme. Neutral colours can be important for decorative schemes. True neutrals are black, white and greys, but in decorative terms the word 'neutral' has expanded its meaning to include desaturated and less bright colours, particularly those with an earthy feel.

Research shows that colours can affect the way we feel. The effects are measurable under controlled conditions, but often do not manifest themselves to the same degree in real-life situations. The research deals in generalisations, where colours may be described only in broad terms, and the impact or modifying effect of adjacent colours is ignored. Reaction to colour is often also a function of cultural and personal experience. It is sensible for designers to be aware of the symbolism of colour, and use it where appropriate, but remember that it is only one part of a larger whole; context is all.

When working with colour, the design must pay close attention to the smallest of details. Here, the buttoning of the banquette seat is executed in a fabric that contrasts with the rest of the seat but matches one of the colours used in the wallpaper, providing a link that gives strength to the scheme.

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Colour schemes

We have seen that a visual concept can be used to dictate the colour scheme. This allows colour schemes to be derived from the brief, but there are other systematic methods of relating colours to form the basis of a scheme. Even when taking a scheme from some other form of inspiration, it may be helpful to determine which type of colour scheme is being used so that a clear understanding of how the scheme is working can be gained.

The basic types of colour scheme are named in relation to how the colours sit on the colour wheel. Following a defined structure will usually result in a workable scheme, but flexibility must be allowed. The colour wheel should guide rather than dictate. There are so many variables that it does not pay to be dogmatic about the rules of colour. For this reason, the schemes as described here should not be seen as exclusive; variations are allowed and desirable. Even in monochromatic schemes, accent colours (small amounts of contrasting colour) can lift an otherwise ordinary scheme and transform it into something special. As ever, balance is the key and judgement on these matters is something that needs to be developed.

The artists' colour wheel is an invaluable tool to the designer, offering a guide to workable colour combinations.

Scheme type	Depiction on colour wheel	
Monochromatic	Uses different values of a single colour.	These schemes can still have large contrasts because of differences in saturation and brightness, or can be differentiated through surface finish for subtle and sophisticated effects such as matt and satin paint. Schemes using neutral colours can be calming and less vibrant, but need variety of texture and contrast to avoid becoming bland.
Analogous	Uses two or more colours that are adjacent on the colour wheel.	These often replicate naturally occurring schemes and are generally calming. Greater contrast between colours will give a stronger result.
Complementary	Colours that are opposite each other on the wheel, such as blue and orange, red and green, purple and yellow.	If colours are at full saturation, these schemes are very vibrant. Careful handling of the colours is required to achieve a successful balance.
Split complementary	A scheme with a main colour, and the two colours on each side of its complementary colour on the colour wheel.	More subtle than a pure complementary scheme.
Triadic	Any three colours which are equidistant around the colour wheel.	Care needs to be taken to achieve balance, though this will be a subjective call.
Tetradic /quadradic	Four colours that have a logical relationship on the colour wheel, such as double complementaries.	As triadic (above).

Colour perception

Our perception of colour is influenced by several factors, which means that our experience of colour is not absolute; it changes all the time. Some of the reasons why colours seem to shift and change are outlined below.

Light sources rarely emit light that is truly white with an even mix of all wavelengths. Incandescent lamps give out relatively warm (red-yellow) light, for example, while other types of artificial light source all have their own colour characteristics. Daylight, which is often quoted as a reference standard, will actually change in quality throughout the day, and is also dependent on geographical location and orientation, which refers to the outlook of a space in relation to compass point.

Material surfaces can reflect light in a diffuse or specular (mirror-like) way.

Colours can be changed to a subtly different hue by the presence of other colours nearby.

Because of these and other reasons, it is impossible for us to accurately remember a colour. Actual references should always be taken or noted when trying to colour match. Reference samples are also helpful when discussing colour with clients. If this is tried without specifying exactly what colour is being talked about, mistakes will be made – when the client says blue for example, what blue do you imagine? Is it the same colour that the client is imagining?

A number of material surface effects are at play in this interior. The richness of the velvet and the faded appearance of the wallpaper in the sunlight combine to create a sense of antiquity and history.

A large piece of art provides a major focal point in this space. The colours employed in the painting are sympathetic to the rest of the scheme. Which came first, art or scheme? The presence of nearby colours can subtly alter the hue of others.

The effects of colour on space

Colour schemes can apparently alter the dimensions of a space. Individual colours can either advance, closing in on the viewer and making spaces feel smaller, or recede and make spaces feel larger. Warm colours (reds, yellows, oranges) and darker tones tend to advance, while cool colours (blues, greens) and lighter tones tend to retreat. These effects can be used to enhance or hide existing features of a space.

Some of the key effects that can be achieved are:

– Long spaces can be made to feel less like a corridor by using an advancing colour on the short walls.

– Low spaces will feel more spacious with receding colours, high spaces can be lowered with advancing colours.

– The use of similar colours will link and unify multiple spaces.

– Using receding colours with low contrast between different colours will create a feeling of spaciousness.

– Strong colour contrasts and/or advancing colour will reduce the feeling of spaciousness.

Applying colour across natural breaks, such as corners, will also alter the feel of a space. It can camouflage the structure and increase the effectiveness of the strategies listed above. For example, to reduce the apparent height of a space, an advancing colour can be used on the ceiling and the uppermost section of the walls.

In this large bedroom in a country house hotel, the dark walls help to hold the different elements required in the room together, the colour advances somewhat to give a comfortable feeling of enclosure.

This rich bathroom scheme utilises natural finishes and a largely neutral colour scheme (greys, browns, blacks and whites). The red glass acts as an accent that lifts the scheme, adding a dynamic quality that would otherwise be missed.

Light

Light and colour are intimately linked. Both natural and artificial light plays a major role in shaping the decorative scheme. Many projects would benefit from the creative and technical input offered by specialist lighting designers, and if they are to be involved it is important that they are brought in to the project at the earliest feasible stage. Ideally, this will be before any major planning or design decisions have been made.

If the project is small scale and the interior designer is ready to take on the role of lighting designer, it is still advisable to consider the lighting scheme right from the start rather than as an afterthought. The best effects and schemes are conceived when light is given equal status with the planning of the space. If the project requires the planning and installation of a completely new lighting scheme, then it might be appropriate to allocate as much as 30 per cent of the budget to lighting. That figure may be surprising, but it serves to underline the importance of good lighting to the success of a design proposal.

When designing a lighting scheme, attention should be paid to the proposed colours and finishes, as these have a large bearing on how effective the lighting is.

Natural light

Before creating a lighting scheme, the effects of natural light within a space should be understood. How does light travel through the space? How does it vary with time of day and time of year? Would changes to the size, position or number of windows benefit the scheme? Is the landscape immediately outside the windows responsible for modifying the light that enters the building? Understanding all these points can be difficult when the designer usually only has a very brief period in which they can experience the space for themselves at first hand, but research should be undertaken to allow a complete picture to be built up. Only once that is complete is it possible to decide how artificial light can be added to augment the space.

Artificial light

The addition of artificial light allows the designer to put light in specific places for practical need or decorative effect. It can create mood either in isolation or by supplementing natural light. Artificial light is, of course, a necessity if the space is going to function at night. As described earlier when looking at colour, each type of light source creates light with different colour bias. It is possible to mix different sources, but this needs to be done carefully (see page 134). Light fittings are likely to evolve radically to cope with the need to reduce energy use over the next few decades.

This fibre-optic 'sky' has been simply installed in the plasterboard ceiling using 144 fibre tails linked to one hidden light source. It is set to illuminate as the main lights are dimmed for film screenings, and creates a luxurious home cinema environment.

Lighting schemes

Effective lighting schemes create drama and interest by employing light and shade. It is not necessary to flood a space with an even wash of light; in fact this will lead to bland and uninspiring schemes that are dispiriting. Conversely, the contrast of light and shade is stimulating, and if the user is given adequate control over the lighting scheme, the dramatic use of light can still prove to be practical and effective. The designer should aim to create layers of light by employing different categories of light and light fitting. These are:

General or ambient lighting is used to provide an overall level of light that allows us to navigate the space and perform basic non-critical tasks. It is not necessarily totally uniform in nature, nor does it need to be extremely bright.

Accent or feature lighting is for the purpose of adding detail and interest to the scheme. It may highlight an artwork or an architectural feature such as an alcove or column.

Task lighting provides sufficient illumination for the safe undertaking of specific jobs, but can take various forms. It could be a free-standing luminaire for a desk or built-in lighting under kitchen cabinets, for example. It may be a bright but very localised light source.

Decorative lighting is used primarily as an adjunct to the decorative scheme, its form helping to add the necessary detail and visual interest rather than providing useful illumination.

Kinetic lighting includes any light emitted from a flame, such as firelight and candlelight. It is a light source that is randomly variable by nature, and gives another layer of interest to the decorative scheme, even if it is somewhat unpredictable.

For a lighting scheme to work well, it must be easily controllable. Adequate and easily accessible switching is the minimum, and it may be desirable to consider automated control and scene-setting controls that create different moods at a single touch. Installation of the light fittings and control equipment can lead to considerable disruption, which emphasises the need for careful project planning right from the start.

To highlight the architectural beauty of this staircase, custom-made low-voltage fittings are concealed behind each landing in order to uplight the void and push the banisters into sharp relief. The light falls in gentle pools which draw enticingly on and up the stairs.

A high ceiling is a wonderful opportunity to use theatrical and striking candelabra. The single downlight provides an additional lighting scene to be used to create ambience and drama within the space. Crystal chandeliers should also be cross-lit with downlights to provide sparkle and accentuate their form.

This lighting scheme reflects the relaxing environment of this newly refurbished Country House Hotel Spa, while introducing a sense of luxury into the space. The oversized pendant provides an element of dramatic glamour, elongating the space, while the recessed uplighters highlight the organic texture of the local stone behind.

7 Sustainable design

Very few people with an interest in interior design will have escaped an awareness of the impact of humans on the environment. However, some may not realise how the major issues that we face are relevant to interiors and interior designers. In fact, as designers, we have the ability to make a greater impact than most individuals on the environment, simply because we seek to rework not just our own homes or workplaces but those of our clients, too. The choices that we make in our selections of materials, furnishings, energy sources and so on can alter for better or worse the balance that exists in the natural systems that operate in the natural world. With foresight, we can make choices that are inspirational and desirable and there is no need for sustainable design to be seen as inferior in either aesthetic or practical terms.

There are three areas in particular that warrant our attention: climate change, non-sustainable use of raw materials and health issues. We need to become 'ecologically literate' in all these areas to understand the implications for the environment of all the design decisions that we make: what impact does this product have on the environment throughout its life? Are there any health issues associated with this choice of material? And so on. This should be as much a part of the process of design as, say, planning or drawing.

Climate change

Interior design and climate change

The Intergovernmental Panel on Climate Change (an organisation set up under the aegis of the United Nations) evaluates the risk of climate change caused by human activity and is unequivocal in its 2007 statement that human activity is a contributor to climate change. While it is not the only factor, it is an important one, and around 50 per cent of that contribution is related to the built environment (both the construction and running of buildings). The rise in global average temperature recorded over the last few decades, and the increase in greenhouse gasses that have caused it, are largely the result of our use of the fossil fuels coal and gas.

An important point to understand is that the effects of global warming do not lay some way off at a point later in this century. The effects are beginning to be felt now around the world. If it is a reliance on fossil fuel that is creating much of the problem, then it is without doubt the developed world (Europe, North America, Australia, Japan) that is responsible for the problem, but that problem is manifesting itself in various ways in both developed and developing countries.

Energy generated from the burning of fossil fuels is used by mechanical heating and air-conditioning systems that we have come to rely on in our buildings, as well as for water heating, cooking and lighting. Consequently, it is something that interior designers can help to combat through the choices that they make in their work. If we are to mitigate the effects of global warming it is something that we must do, along with architects, developers, builders and our clients. In the words of Architecture 2030, an environmental advocacy group, 'All projects need to be designed to engage the environment in a way that dramatically reduces or eliminates the need for fossil fuels'.

Precise figures for the proportion of our total energy used which is taken up by the running of our homes is hard to come by, as each source of information bases its calculations on slightly different criteria and assumptions. Not surprisingly, differences in the climate due to location also have a large effect on these figures. However, most sources suggest that we use around 50–60 per cent of our total energy budget on keeping our houses at a comfortable temperature (this includes either heating or cooling, depending on location), approximately 25 per cent for water heating, five per cent for cooking and the remainder on lighting and other appliances.

If much of the problem of climate change is centred on a profligate use of fossil fuel, then any steps taken to find substitute forms of energy or to reduce our energy use can do nothing but good for the environment. Energy-saving measures may have little impact on the aesthetics of an interior design scheme, particularly when carefully integrated into the building, but careful consideration of them and the scope for their use is just as much a part of the interior designer's remit as is space planning or creating a decorative scheme.

Climate change

Energy-saving
strategies
and services

Sustainability
and material use

Thinking points

Health issues

Society's frequent and often unquestioning use of synthetic materials is being blamed by some researchers for the increasing incidence in the developed world of allergies and other health problems. The unknown and untested effects of the chemical combinations that surround us in the built environment are a source of concern for many, and although these materials undoubtedly have many benefits there are those who urge caution in their use until more is known about their effects on the human body. The compounds in question are found everywhere, and range from insecticides that are used to treat carpets, through paints, to formaldehyde that is used in the construction of many timber products such as MDF and chipboard. Formaldehyde is a good example of the problem, as it leaks from products in gaseous form throughout the life of the product. As it is present at low levels in the environments we inhabit, it is taken into the body where it is seen as a potential source of the rise in asthma experienced over recent decades.

Manufacturers are responding to these concerns by finding alternatives to some of the most well-known issues. Several paint companies have rediscovered old manufacturing technologies and are using natural resins and pigments. Some of these paints have the additional benefit that they allow moisture to pass through them, allowing walls to act as humidity regulators. This makes for a more comfortable and healthier indoor environment.

Energy-saving strategies and services

Some of the most common energy saving strategies and technologies are:

Draught proofing	An extremely simple but very efficient way of reducing energy use that is very cost effective.
Double-/triple-glazed window units	Insulating glass units are considerably more effective at retaining heat within a building than single glazing. However, the cost makes them less attractive than measures such as draught proofing.
Insulation for hot water tanks and pipes, attic/loft spaces, cavity walls	Another very simple and effective solution. Standards for insulation change from time to time, so even if insulation is present it is worthwhile making sure that it meets current standards.
Micro electricity generation technologies	These aim to reduce the need for inefficient centralised power generation (typical power stations and distribution systems are often less than 40 per cent efficient). Micro power generation is based on small systems supplying single buildings or small developments. If none of these are feasible, then large-scale renewable electricity generation (usually wind) is a much better option than conventional power generation.
Wind	Small-scale systems are available, but can be problematic in urban areas. There are relatively few locations that consistently provide winds of the minimum average speeds required for viable generation.
Hydro	Systems that utilise running water from streams and rivers are by their nature very site specific. However, if the right conditions can be met, they can be efficient and consistent.
Solar PV	Photovoltaics are solar cells that generate electricity from the direct action of light falling on the cell. Arrangements of PV cells can provide a proportion of electricity required by a building, and surplus electricity can usually be directed into the national distribution grid. Batteries may be needed to provide power at night. Panels are often roof mounted, and newer systems mimic roof tiles and are therefore visually unobtrusive.
Micro CHP (Combined Heat and Power)	Central heating boilers have traditionally been around 60 per cent efficient, and a large proportion of the energy produced by the burning of gas or oil is wasted as it escapes up the flue. Micro CHP systems aim to capture this wasted energy and use it to drive a generator that can provide a proportion of a building's electrical needs while the boiler is in operation.

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Climate change   **Energy-saving**   Sustainability
                  strategies   and material use
                  and services

Solar water heating

These systems pump fluid through collector tubes (positioned to catch solar radiation), which is then circulated through a water tank to heat the water. Supplementary electrical heating is usually fitted to ensure constant hot water, but because these systems work on direct solar radiation they can provide hot water when the ambient temperature is well below freezing point.

Heat pumps

There are various systems that work by taking low-level latent heat from the ground or air, and concentrating it to provide a means of heating air or water that is circulated within a building as the main heating system. Put simply, they work rather like a freezer in reverse. Ground source heat pumps can provide all the heat requirements of a building, but they may need extensive excavation or drilling of boreholes to allow for the installation of the heat transfer pipes. They are usually more consistent than air source heat pumps as temperatures underground are more stable throughout the year. Heat pumps can generally be used in reverse to cool a building by taking waste heat from a building and using the ground or air as a heat sink.

Geothermal energy

In a number of locations worldwide (notably Japan, Iceland, and parts of western USA), subterranean water heated to very high temperatures in the earth's crust can be used in a heat exchanger to provide heating for large and small buildings.

Energy-efficient appliances

These are easy to source and specify in countries that use a rating system independent of the manufacturer. Labelling systems clearly show how one appliance compares to another. These systems apply across all types of electrical 'white goods'. For those situations where gas is still the only realistic option for powering central heating boilers, condensing boilers can be selected. These are more efficient (approaching 90 per cent) than older gas boiler designs as they recover heat from the exhaust.

Biomass heating

For most domestic situations, biomass means wood-based fuels. Biomass heaters can be efficient stoves that heat rooms directly, or boilers used for central heating. In both cases, space is needed to store the fuel. Some systems provide automatic loading of the fuel, while others don't. Biomass is sometimes advertised as carbon neutral as it is assumed that carbon dioxide produced during combustion is reabsorbed as new crops are grown to provide more fuel. However, it would be more accurate to call biomass heating low carbon.

Induction hobs

Many people prefer to cook using gas for its controllability, but burning gas produces carbon dioxide. Induction hobs create heat directly in metal pans through electromagnetism and are just as controllable as gas. If the electricity used for the hob is green, the benefits to the environment are obvious.

Compact fluorescent (CFL) and Light-emitting diode (LED) lighting

Both these technologies are significantly more efficient than traditional incandescent lamps. Although both types are still improving, fittings are available for a wide range of applications that use these lamps. Check carefully before specifying, as colour rendition and light output is different to the traditional incandescent lamps.

Sustainability and material use

Stone

148   **The use of almost any material within a scheme is going to impact the environment in some way. Natural materials such as wood and stone are used for many reasons, not least because of their looks, but acquiring these materials can put a strain on the local environment.**

Variations in the patterning of stone occur wherever these materials are found, and particular variations that are sought for their decorative effect can be extremely localised. Some of the most sought-after examples are now reaching exhaustion in the quarries where they originate and once they are used, they are gone forever. When stone is quarried, it is sawn to size and often polished to bring out the pattern inherent in the material. Both of these operations require large amounts of water to cool the saw blades and polishing machinery, and there have been instances where the large demand for water for these purposes at quarries in Asia has resulted in the failure of drinking water supplies in surrounding villages.

Many designers are unaware of the connection between timber used in construction and furniture production and the effects on the environment when that timber is illegally logged. The need for responsible sourcing cannot be overemphasised.

Timber

Many hardwoods are also sought out for their decorative qualities. It can be very difficult to be sure of the provenance of much of the timber that is used for construction and decorative purposes, which means that organised crime is present in the market, logging many species of timber illegally and destroying important forest habitats in the process. Some timber species are vulnerable to extinction as a result, yet it is still possible to find furniture made with these timbers in developed countries, and it is also used in construction materials such as plywood. Schemes do exist that ensure the timber is grown and harvested in a responsible manner, and then track the timber to market, ensuring an unbroken 'chain of custody' from source to customer. The most widely recognised of these is that administered by the Forest Stewardship Council, and timber bearing the FSC mark is available ever more widely. The Good Wood Guide from Greenpeace provides information on the status of particular species and suggests alternatives for those timbers that are endangered in some way.

Plastics

Most plastics available today are derived from oil, another non-sustainable resource. Although we dispose of huge amounts of plastic, an increasing amount is being recycled, and products made with recycled content are often indistinguishable from those made with virgin material. Many product designers are placing an increasing emphasis on the sustainability of the products that they create, and look at the implication on the environment of the product lifecycle, from the extraction of raw materials to the disposal of the product when its useful life is over. Interior designers can pick up on this by carefully sourcing these products and making use of them where possible.

8 Communicating design

You know the effort that you've put into the creation of your design. You know how all the different elements are connected and you've been intimately involved in every aspect of the design. You know how the materials used relate to the concept, and to one another. You know and understand how your proposed design solution works. You know all the clever, innovative and exciting ideas that you have included in the space. But your client doesn't. Having lavished a great deal of effort and time on the design of a space, including research, planning and sourcing amongst other things, the next stage of the process is to share the fruits of those efforts with the client.

This section looks at the different means of presenting work so that it can be easily understood by the client. This is more than a nicety; it is crucial if you are going to engage the client and ultimately sell your scheme. If the work that you present is easy to understand and attractively presented, the client will instantly be on your side. If, on the other hand, the work is not clear, or the presentation work is not as neat as it could be, doubt is set up in the mind of the client. It may be somewhat irrational and unjustified, but if anything prevents the client from easily understanding the proposal, then it will be harder to sell the work.

Telling the story

Verbal presentation

The client needs to be educated about the ideas and concepts incorporated in the design. The client needs to be excited and beguiled by your proposals and as we are dealing with something physical, three dimensional and visual, the easiest way to describe it is with drawings or models. One of the elements of the design process that has already been heavily stressed during the discussion of design development is the need for drawings, and lots of them, so hasn't the production of drawings and other visuals already been taken care of? Not completely.

The drawings that are fit for presentation are likely to have been taken on a stage further than those that have been used for design development, which would have been accurately drawn but not necessarily finished to a high standard. The drawings used for presentation will be carefully refined and executed in a manner that makes them sympathetic to the style of the project. Which drawings should you use? Those that show the scheme at its best and which explain the scheme most fully. How many drawings will be needed to do this? As many drawings as are necessary. This is another important point; there is no magic number of drawings that will make the design come alive. Instead, each project will need to be considered carefully to see what drawings need to be made. You will also need to show samples of the materials that are being proposed, real samples if these are available, so that it will be possible to see and feel the actual colours and textures that will feature in the scheme.

The idea of talking a client through the design in a one-to-one session is something that can make even experienced designers nervous. It is unlike almost any other business meeting. The reason for this is that the designer is so involved with it that there will be an incredible personal attachment to the work. No one likes to see their work disparaged, particularly when each aspect has been thought through in relation to the brief, but the truth is that if the drawings and other material do not provide a strong supporting role to the presentation, then it may be hard for the client to understand the design and see the benefits that the designer is talking about. This personal connection can be used to advantage. It will mean that the designer can be passionate about the work, making for a convincing and compelling argument for its adoption. The presentation will, however, need to be carefully judged as not all clients would appreciate an overly enthusiastic or flamboyant approach to a presentation.

Telling the story   Presentation
drawings

Presentation
boards

Multimedia
presentations

Every presentation is essentially a sales pitch, and the person who is presenting should try to adopt every technique, however subtle and apparently unimportant, to close the sale and put forward a convincing proposal. This applies whether the person (or persons) being presented to is (or are) the client, or the designer's superior who is deciding which proposal to develop for later presentation to the client. These techniques could be summarised as making a good impression, and will include anything from being punctual to being appropriately dressed. An appropriate style of delivery can also be important. Should it be formal or informal? This can be difficult to judge in advance, but should still be considered, and a decision made on best judgement.

All of these points matter, and they matter even more if the presentation is part of a design competition. Companies and organisations with a need for a designer may sometimes try to generate a number of design proposals from which they can choose by holding a competition. These can be 'open', where an advert is placed in the media calling for entries from interested parties, or they can be closed, when a number of selected designers are invited to submit proposals. Competitions are often undertaken at the designers' own expense, so with no guaranteed payback it is vital that efforts are focussed on the brief in order to produce a design solution that meets the needs of the client, and that careful note is made of any constraints made upon the format of the entry.

It will be vital to maintain the interest of those who are watching the presentation. To this end it is important to rehearse the presentation and to seek feedback from friends or colleagues on how effective it is. When time for presentation is limited, it might be appropriate to verbally deliver only an overview of the project, and rely on the presentation boards to deliver the detail during subsequent viewing by the client. If this is so, then it is even more important that the boards do their job of explaining the scheme in a clear and unambiguous way.

Verbal presentations may follow a fairly rigid format, with the presenter progressing through each part of the design proposal step by step, or they could be more informal, being more of a conversation between designer and client. Although the designer must aim to create as complete a picture as possible with presentation boards, there may be situations that require further explanation. In such instances, it is useful for the designer to be able to sketch out ideas as they are talked through.

Presentation drawings
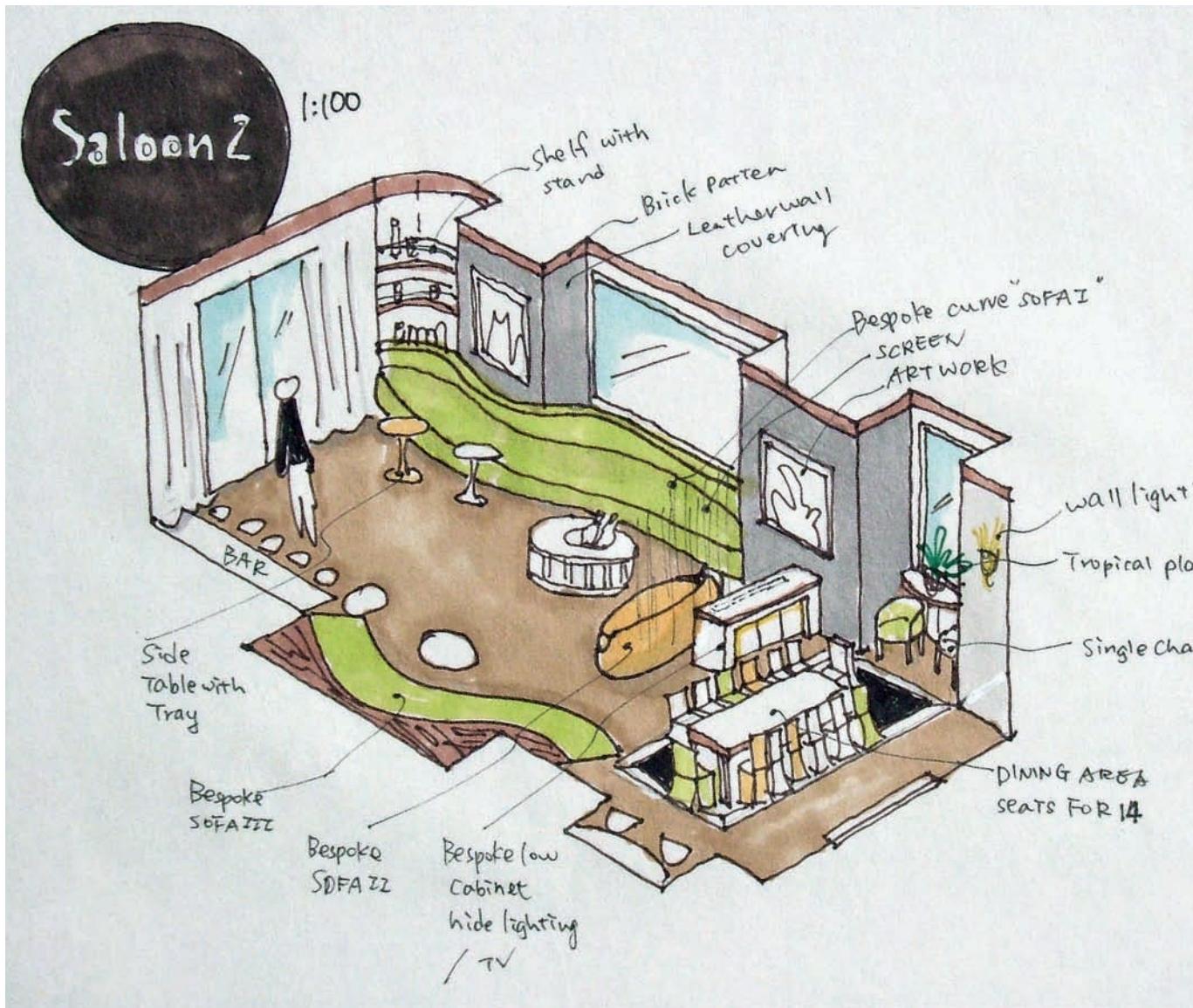
Chapter 3 looked at the use of technical drawings as aids to the understanding of space and the development of a design solution. In particular, plans, elevations and sections were introduced as the primary methods for depicting the horizontal and vertical planes of an interior. Other drawing types exist that can be used to see the space as if from different, and in varying degrees more realistic, viewpoints. When deciding which drawings are needed to explain the scheme, careful note must be made of the important points of the scheme that need to be explained. Existing drawings used to aid the planning of the space may be used as presentation drawings, or it may be necessary to create completely new drawings.

Three-dimensional drawings

There are two other basic types of drawing that show spaces and objects in three dimensions; the first type use geometric drawing techniques to create a pseudo 3D effect, though because they ignore the foreshortening effects that we see in real life they can look somewhat distorted. They are usually drawn to represent the space as viewed from outside its boundaries. Vertical lines on the drawing represent heights, while widths and depths are represented by lines at other fixed angles. The family name for these drawings is axonometric, and the two most common are plan oblique (where widths and depths are represented by lines drawn at 45° to the horizontal), and isometric (in which width and depth are shown by lines drawn at 30° to the horizontal). Perhaps slightly confusingly, in interior design parlance, plan oblique drawings are often referred to as axonometric, while isometric drawings retain the name isometric.

In the plan oblique or axonometric drawing, the plan shape of any item remains unchanged as it is elevated to its correct height in the drawing. Thus a circular table, for example, will be drawn with a circular top, which is contrary to our experience of seeing such a table in real life, and so to some extent the drawing looks unnatural. However, it can be a useful drawing because it allows us to produce a basic three-dimensional interpretation of a space or an object relatively quickly. The drawing creates a feeling of viewing the subject from a high viewpoint, and so is helpful when drawing views of relatively small spaces, typically bathrooms or kitchens. The fact that the plan view remains unchanged makes the initial set up of this drawing relatively fast.

Saloon 2   1:100

shelf with stand

Brick Parten

Leatherwall coverlry

Bespoke curve "SOFA I"

SCREEN ARTWORK

wall light

Tropical plo

Single Cha

DINING AREA seats for 14

Bespoke low Cabinet hide lighting / TV

Bespoke SOFA II

Bespoke SOFA III

Side Table with Tray

BAR

This isometric drawing is used to explain the saloon deck of a yacht. It has been drawn to scale on the drawing board, but traced freehand to soften the lines and add warmth. Annotations explain the features of the design, and the figure adds scale. The drawing is loosely rendered with marker pens.

Because isometric drawings depict widths and depths with lines at 30° to the horizontal, they cannot be based directly upon an existing plan drawing. A new isometric plan must be drawn, though in reality this isn't such a big task. The angles involved also give the drawings a more natural appearance than the plan oblique, though there is still no use of perspective in the drawing.

The second type of drawing is the measured perspective drawing. With this type, it is possible to follow a set process that results in a drawing which emulates a scene as it would be viewed by someone standing within the space, complete with a constructed representation of real-world perspective effects (foreshortening, for example). Perspective drawings are one-point, two-point or three-point varieties, with the names referring to the number of vanishing points employed.

Interior designers can generally cover all of their needs with one- and two-point perspective drawings, with three-point perspective being employed to show the exterior of buildings, and then usually only taller ones. These drawings can look superb, but following the full technique (of which there are many variations) can be laborious, and designers will often use hybrid techniques where the framework of the drawing is constructed and much of the remaining detail is estimated into position in the drawing.

Once any of these techniques for producing formal drawings have been mastered, the rules can be applied to sketch versions of them.
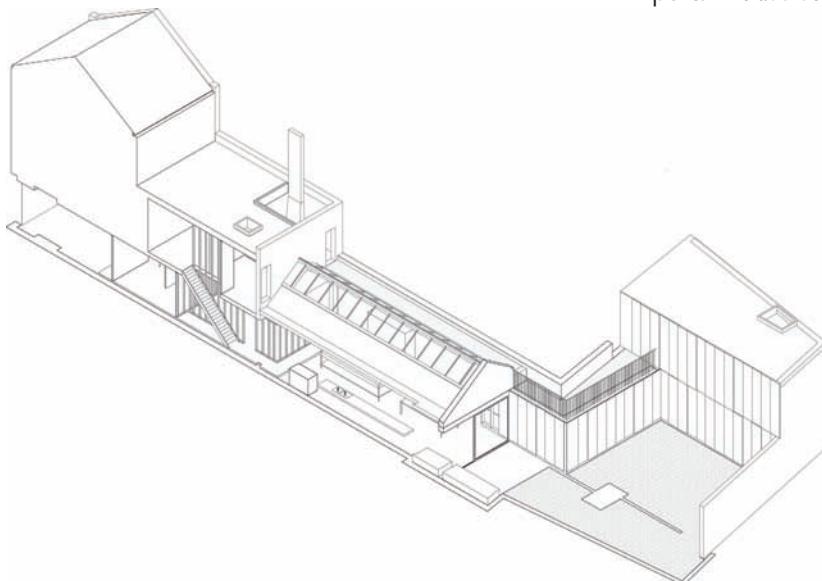
A perspective drawing is used to look inside the building and at the same time show the revised facade that was part of the brief. Both the pattern and scale of the decorative scheme has been hinted at in the rendering, accomplished using Photoshop.

Drawing treatments

Non-rendered line drawings

The techniques employed dictate the basic format of the drawing, and the appropriate drawing method will be chosen because a particular result is required. However, much of the look and feel of any of the drawing types depends upon the tools used for mark making and the personal style of the author of the drawing. Different media and techniques should be trialled and practised so that a good knowledge of the possibilities is built up.

Careful rendering (application of colour) of the finished drawing will add further new possibilities that can add to the effectiveness of the drawings in terms of selling the scheme. Any technique may be appropriate, and ultimately one of the tasks of the designer is to make a judgement as to which style will best fit the presentation. Some of the options are covered here.

These drawings focus on the quality and style of the line to communicate their message. Copies of the pencil drawings straight from the drawing board are quick to produce and suggest a work in progress that could form the basis of a discussion between designer and client about the direction that the design proposal is taking. These drawings will probably have quite a cold and unsympathetic but business-like feeling about them.

Drawings that have been traced in ink using technical pens will feel considerably more finished, but the stark contrast of black on white can make them seem quite empty. This can be addressed by copying the inked drawing on to coloured or textured paper stock, by tracing the linework freehand without the use of technical drawing instruments, or by using negative photocopying techniques that turn black on white into white on black – all of which can be very effective. Tracing the drawing freehand is especially so. It generates a visual that is much softer than one produced using the drawing instruments, and in presentation the effect is much less dictatorial and much more conversational. When using CAD software to create technical drawings, take time to vary the line widths used to represent different parts of the drawing, as would happen if penning manually with technical pens. This avoids the barren look that would otherwise result.

This detailed non-rendered line drawing can be used to explain circulation, construction, views, and a range of other aspects of the design.

Rendered drawings

There are many ways in which shading and colour can be added to a drawing. Commonly used media for rendering include: pencil crayons, marker pens, collage, mixed media and watercolours. Each medium has its own unique feel and though it is unlikely that an individual will feel equally comfortable using all of these techniques, most designers will comfortably employ two or three as appropriate. Drawings can be fully or partially rendered. Partial rendering naturally takes less time to complete, and can be used to focus attention on form rather than finish while still giving an indication of the materials used. The areas rendered could be clearly defined and of regular shape and size, or they can be more random in nature and can blend seamlessly from rendered to unrendered.
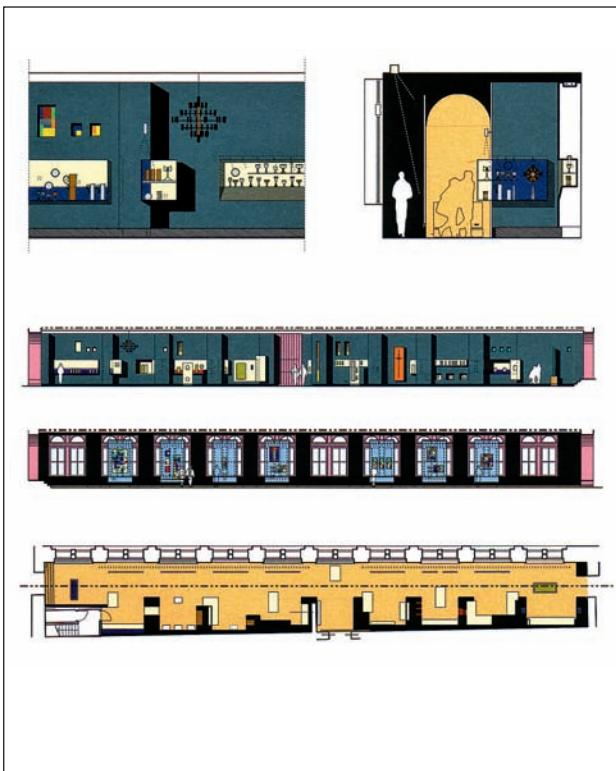
Image-editing software is another means of adding colour and texture to line drawings that have been created by CAD software or scanned from manually produced drawings, and several software applications are available that are intended for rendering three-dimensional models produced with CAD packages.

Rendering a drawing will help to convey colour and textural intentions. This drawing has been worked up relatively quickly on the drawing board with casual pencil work, then scanned and rendered in Photoshop.

Shaded drawings

A halfway house between line drawings and fully rendered drawings are those that have been worked up to show form through shading only, without the use of colour. Pencils or technical pens can be used to add stippling or hatching, and this can produce a very attractive result. This technique can require practice to produce convincing results, but it does allow form to be conveyed without the need for additional media. An even simpler option is to add nothing but drop shadows to a line drawing. With this technique, no effort is made to create realistic shadow effects. Instead, a position is assumed for an imaginary light source (for example, at the top left of the drawing), and shading of even depth and width is added adjacent to the edges of any of the three-dimensional objects that face away from the light source.

This collection of elevations shows the details of a gallery refurbishment at the V&A Museum in London. Colour and shading are used to indicate finishes and to separate the different planes of the drawing. The drawings also show how some of the light fittings will work, and the figures add scale to each elevation.
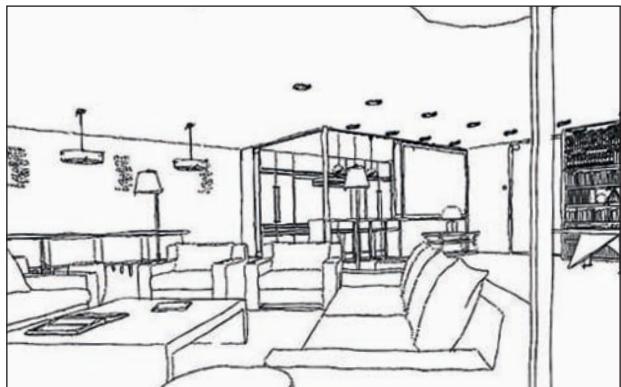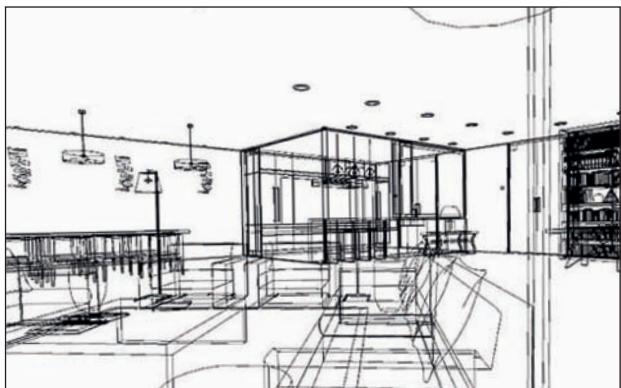
CAD drawing

Many designers now eschew the use of manual drawing methods in favour of the computer. This makes sense for several reasons; people are used to working digitally in other areas of their lives, so the production of drawings by digital means is a natural extension of their skills. It also allows changes to drawings to be made quickly and easily, and the exchange of drawings is reasonably trouble-free. However, as discussed in Chapter 3, there are those who feel that the quality of the design can suffer when the human connection with the work (through pencil and paper) is lost. Clearly this is a very personal opinion, but both sides would do well to listen to the views of the other if they are to be the best that they can be. Whichever way one ends up working, it is generally accepted that manual drawing is the best way to learn the procedures, standards and conventions of technical drawing.

CAD software does not automatically produce beautiful-looking drawings that will be an asset to a presentation. In fact, the opposite can be true. The consistent uniformity of a CAD drawing (particularly two-dimensional drawings) can lead to sterile and unsatisfying drawings that are accurate, but difficult to read and interpret.

Although it is standard practice to differentiate the line weights of a manual drawing by inking with technical pens of various nib sizes, the same effect is often not recreated when drawing with CAD. This is unfortunate, as it makes CAD drawings less legible than their manual counterparts, but it is quite straightforward to set the line weights of different elements of the drawing to various values, so recreating the variety of a manual drawing. The extra effort that this requires is easily worth the effort for the increase in legibility that it allows.

CAD programs can be helpful aids to the production of perspective drawings without necessarily being used to create the final visual. The ease with which viewpoints can be moved by dragging a mouse allows the composition of a drawing to be quickly refined. Rough, unrendered visuals can be printed and traced over by hand to allow a varied approach to the preparation of drawings.

This group of illustrations shows the range of rendering effects that can be created in three-dimensional CAD drawings at the click of a mouse, from the basic 'wire-frame' drawing to a near photorealistic rendering. Though some of the rendering effects are not as near to real life as others, they have their own qualities and any one may be the most appropriate rendering style for a particular situation.

Presentation boards

All the presentation material which has been carefully generated needs to be organised and delivered to the viewer in the sequence intended by the designer. There needs to be a ready system for ordering and organising the visuals, text, plans and other material such that it tells a coherent and easily understandable story. This is usually accomplished through the use of presentation boards or panels. It may be that all relevant information can be presented legibly on a single board, or it might be appropriate to use multiple boards to tell the story (in the context of this book, the term 'board' is used to describe any composite of drawings, images and text that is displayed in either printed format on rigid or flexible media, or digitally as part of a slideshow).

While you may give a verbal presentation to the client in addition to showing a set of boards, it is likely that the presentation boards will be left for the client to review, and the client and others that may not have been at the presentation will need to be able to easily assimilate all the material that forms the submission. Once again, clarity is the key, as any discrepancies, inconsistencies or breaks in the narrative of the presentation will create doubts in the mind of the client. Even when the designer has made a verbal presentation, the boards need to be able to stand on their own to explain the design.

Constructing presentation boards

Boards can be constructed by traditional paste-up methods, whereby individual images, blocks of text, photographs and so on are trimmed and mounted on to the presentation board itself, or digital versions of paste-ups can be created in any of a number of software packages. CAD software, word-processing software, presentation programs (such as PowerPoint), photo editing, page layout and desktop publishing applications can all be used to create digital composites of your technical drawings, illustrations, textual explanations and product images from suppliers. The digital image can be output to paper for final finishing and mounting, or used as an image within a slideshow.
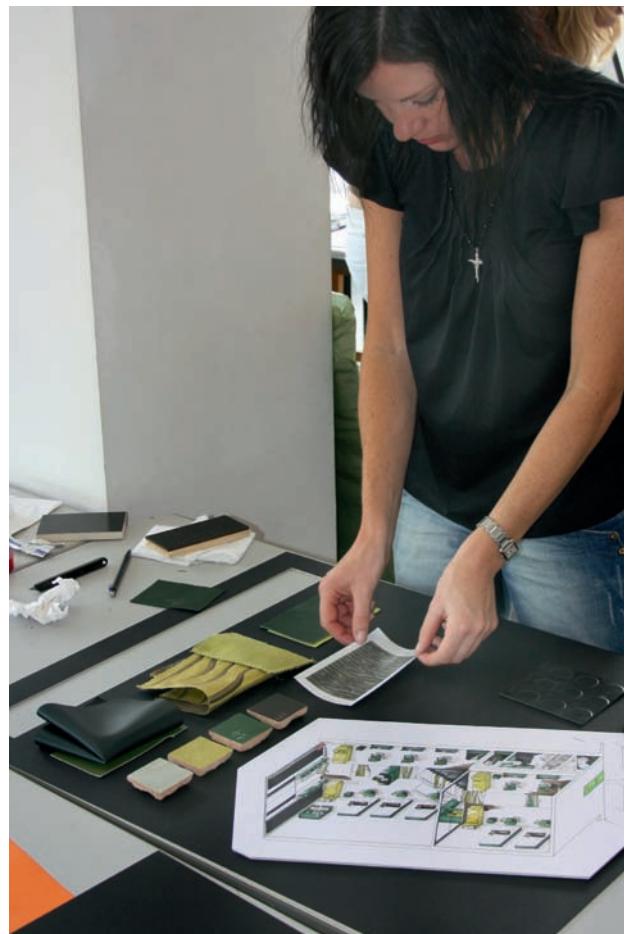
Which is the best route to follow? As ever, there isn't a simple answer; it will depend upon circumstance. Digital imagery can be transmitted anywhere easily, and it has a slick, contemporary feel that can be very seductive, but traditional methods allow the integration of real material samples within the presentation. Sometimes there is no substitute for being able to see and touch the real material. Samples of fabric and finishes show depth and character, they allow the play of light to become a dynamic part of the presentation as materials catch the light, and the depth of colour or sheen of a surface can never quite be replicated in a photograph; however, they are potentially more expensive to transport and are more susceptible to damage during transit.

The sample board for this informal kitchen/dining area shows samples that are neatly explained in the key. The visual that accompanies the board has been drawn by hand and rendered in Photoshop.

Telling the story	Presentation drawings	**Presentation boards**	Multimedia presentations

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Drawings always represent interpretations rather than the empirical truth, but it is important to be aware of the implications of the information that is communicated on the boards. As clients have nothing other than the presentation material to go on, their understanding of the scheme will be derived solely from what is included on the presentation boards. When these are shown, they can take on the status of a contract document; that is what is seen on these boards in miniature is what will be provided on a larger scale when the project is realised. Any deviations or changes should therefore be carefully documented and communicated in writing to the client, and the client will need to be made aware that while every effort will be made to match the appearance of samples of natural materials, it cannot be guaranteed that they will appear exactly as they do on the presentation boards.

The boards themselves are unique, bespoke, creations in their own right. Every project will suggest a different approach to their use and construction, and if they are to do the job of selling the scheme they need to be compiled to a very high standard. When creating physical boards, all the cutting and mounting needs to be of the highest standard, and when working digitally care must still be taken to ensure neatness and consistency of layout. The time spent preparing the boards should reflect the value of the project. Clients will not have confidence in designers who supply dirty, damaged, or carelessly constructed presentation material, and could find it easier to decline to take the project further.

Presentation boards must tell the story of the design in a clear and concise way. A lot of care should go into deciding what illustrations to use, which material samples to show and the layout of the boards. They should be constructed to the highest standards to project a professional image.

Graphics

The careful use and application of graphics – logos, company colours, for example – can further enhance presentation material and lift it above the mundane. It is another opportunity to strengthen the visual appeal and impact of the work and to also enhance its credibility.

It is important that logos are of the highest visual quality, and it may be a wise investment to use the services of a graphic designer when establishing the look of the company. It is sensible to establish not just a logo but a complete corporate identity. This can be applied to any presentation material and the need for a consistent house style will drive the creation of templates for word-processed documents, which in turn will speed up the production of project documentation where it is necessary.

The three boards shown here were used to present a scheme for a hotel bar and restaurant. The first board shows the visual concept at right, and the plan at left.

The final board illustrates the bar in a similar manner. The boards are all A2 size.

The second board shows a perspective drawing of part of the restaurant (rendered in Photoshop) alongside relevant material samples and images of furniture.

This student's sample board uses a title block to incorporate the concept images and can easily be repeated across a set of presentation boards to help create a uniform look to a body of work.

▥ Thinking point

Considerations for presentation boards

If you are to produce compelling presentation material that spans more than one presentation board, there are several aspects that will need careful planning. Before committing to any one method or format, mock-ups will help to identify any problems that could arise.

Construction: As described elsewhere, the construction of the boards can use traditional 'paste-up' techniques, or it could involve mounting a single digitally printed composite image.

Size: When working with physical boards, their size will be dictated largely by the amount of information to be communicated, but the needs of transportation and display should also be investigated. Typically boards may range from the large A1 size, to the smaller A2 or even A3 format. Some design competitions require initial submissions to be in A4 format.

Orientation: Landscape format is generally more appropriate than portrait, but breaking from the norm can add impact. When using multiple boards, a more effective approach is to maintain the same board orientation throughout. If either the orientation or overall size of any board needs to be changed, a strong visual connection can be maintained by ensuring that one common dimension is consistent, for example, within a series of A2 boards displayed in landscape format, a smaller A3 board shown in portrait format will maintain the flow of the presentation.

Colour: The background colour of the board needs careful thought so that it supports the other material displayed without overpowering it. Neutral colours can work well, but stronger colours are likely to need strong visuals to justify and balance a strong board colour.

Layout: The way that the separate parts of the composition relate to one another is of prime importance. A good layout will allow the eye to move around the board without missing vital information and without stumbling over cluttered composition. Layout is often as much about what is left off the board as about what is put on. Most compositions benefit from careful use of negative space, or the space between images, text and so on. The size of border, if any, has an impact upon the feel of the board. Very generous borders can actually make the content of the board look more precious.
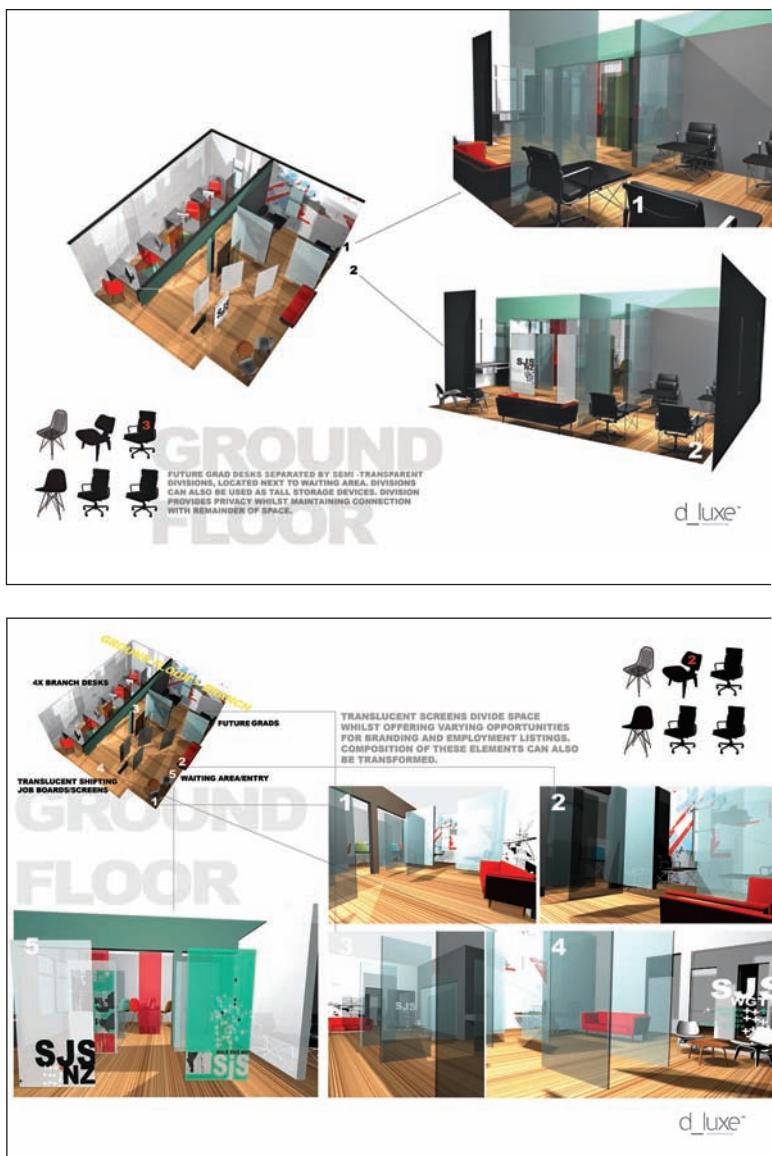
Grids: These are allied to layout and help the designer to visually order and arrange the content of the board. Print designers use grids, and an examination of magazine layout will show that grids do not need to be regular, symmetrical arrangements, but instead can be used to create visual rhythm and interest.

Type

Type has a major effect on the graphic feel of presentation work, and its use can profoundly change the effectiveness or otherwise of the boards. The subject of type is complex and worthy of detailed study in its own right, but an appreciation of the possibilities will help when preparing work for presentation. When choosing which typeface is appropriate for a project, reference to the concept should once again provide guidance. While unusual display typefaces can be used for titles or headlines, larger blocks of text will need typefaces that are simpler and clearer if they are to be legible. Type can arouse strong passions in some people, and appropriateness is always the key in its use. Personal likes and dislikes will sometimes have to give way to a considered appraisal of the visual qualities of a particular typeface.
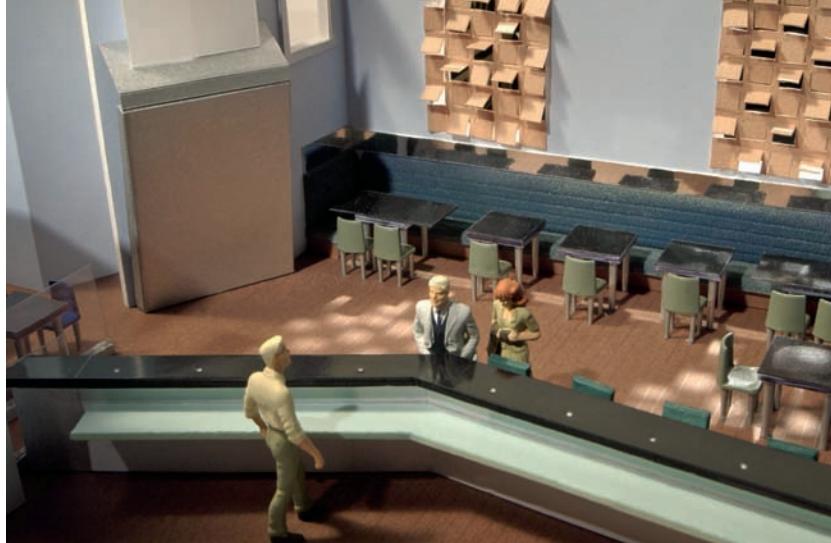
When used on a computer, a particular typeface will only appear as intended if it is actually installed on that computer. When transferring data digitally between computers, it is therefore vital that checks are made to ensure that any typefaces used on the source computer are also installed on the destination computer. If this is not the case, a default typeface will be substituted and it is likely that the layout of typographical elements will change, perhaps radically, thus destroying the careful work that has gone into creating a successful layout. This is not, however, the case when layouts are converted into image files, so this could be one course of action to take before transferring files from one computer to another. The downside to this course of action is that some, if not all, flexibility in the layout will be lost in the conversion to an image file.

Both of these images form part of a presentation that has been worked up and rendered in CAD. The boards are digital composites of images and text from several sources that have been skilfully combined to describe the proposal for the space a clear and unambiguous manner. The resulting image file can then be displayed in any desired fashion and if necessary easily transmitted to other locations.

Models

Simple models that help the understanding of a space were explored in Chapter 3. For presentation purposes, models that have been more carefully constructed can be used to explain the space to the client. Unrendered white models will help to focus attention on the three-dimensional qualities of the space and rendered models can be used to communicate the impact of the decorative scheme. Models can be physical or digital.

A carefully crafted model that shows the exterior and interior of a bar/restaurant. The first of these views (left) takes a high viewpoint to show the layout of the bar and the second (right) looks through the window from the street outside. Models can be shown directly to the client, or photos taken that can be used on boards or in multimedia presentations.

Multimedia presentations

Digital technology gives us new ways to present our work and multimedia presentations allow us to create presentations that can be viewed without the designer being present to give a conventional verbal explanation of the design. The usual definition of multimedia is a software application that can combine text, images, graphics, video and sound into an integrated package for presentation. In practice, this usually means using software such as PowerPoint (Microsoft), Keynote (Apple), or Impress (OpenOffice) to create some form of slideshow, though other options exist (Flash presentations, for example). All three packages are broadly similar, each with its own strengths and idiosyncrasies.

This type of presentation will still use many of the same drawings as a standard presentation, albeit that they will be scanned versions, or drawings exported directly from CAD packages. Video can be added in the form of a 'fly-through', generated from three-dimensional modelling packages, or from within CAD programs, though care should be taken to check the reliability and compatibility of the selected software before deadlines become pressing. Soundtracks such as music and narration can be added to slideshows, and while this is reasonably straightforward, practice is again important as it can take time to learn the process. The sound handling capabilities of the presentation software can be rather limited, and editing of sound files is not generally possible within the software. Capable freeware sound-editing software can be found on the Internet that will allow the recording and editing of a narration or music track before inclusion in the slideshow.

Before preparing a slideshow, take time to observe professionally made product videos or other slideshows. The most effective use the full capabilities of the software, but do so with subtlety. Animations, slide changes and effects are kept relatively simple and discreet. A restricted toolkit of simple slide changes and animations gives continuity and choice without allowing the presentation to descend into clichéd chaos as distracting animations cheapen the effect that should be created.

The near photo-realistic quality of rendered CAD drawings can be used to good effect in presentations. The feel of visuals created in this way is very different from those propagated by hand-drawn and rendered visuals, and should be acknowledged when deciding upon the format for presentation.

Sources of inspiration

The following books are a selection that should serve to inform and inspire. It is a small fraction of the total number of books published on this wide subject, and is a purely personal choice.

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WEAVING, A. 1999
Understanding Modern
London: Quadrille

WILHIDE, E. 1999
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Surface & Finish
London: Quadrille

WILHIDE, E. 1999
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London: Quadrille

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Acknowledgements

Like any textbook, this project is not the work of one single person. Though it bears my name on the cover, it should be clear that it would have never seen the light of day were it not for the vision and generosity of many other people.

Thanks to all at AVA: Leafy Robinson, who helped steer the project and keep me on track in her own gentle and friendly way and who deserves a great deal of credit for the book; and Brian Morris and Caroline Walmsley, who have brought the finished product to the attention of the wider world. Without them, there would have been little point in my spending time to commit to paper the things that I thought others may benefit from seeing. Thanks also to Iris Dunbar.

Thanks are also due to the many talented designers (some student designers, others well respected industry names) whose sublime work is shown in the fine images that make up such a large proportion of this book. It is their work featured here that will, I hope, illustrate the points made and inspire anyone reading the book, showing the possibilities of great interior design. The book's designer, Borries Schwesinger, has turned that collection of images and the accompanying text into a coherent visual story which really is greater than the sum of its parts.

Finally, I'd like to thank all those people who have had to put up with me while writing the book; my employers and colleagues at KLC School of Design, and especially my family. I would like to say thank you to Angela, Chad and Zach by dedicating this book to them.

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Simon Dodsworth

Working with ethics
The Fundamentals
of Interior Design

The subject of ethics is not new, yet its consideration within the applied visual arts is perhaps not as prevalent as it might be. Our aim here is to help a new generation of students, educators and practitioners find a methodology for structuring their thoughts and reflections in this vital area.

AVA Publishing hopes that these **Working with ethics** pages provide a platform for consideration and a flexible method for incorporating ethical concerns in the work of educators, students and professionals. Our approach consists of four parts:

The **introduction** is intended to be an accessible snapshot of the ethical landscape, both in terms of historical development and current dominant themes.

The **framework** positions ethical consideration into four areas and poses questions about the practical implications that might occur. Marking your response to each of these questions on the scale shown will allow your reactions to be further explored by comparison.

The **case study** sets out a real project and then poses some ethical questions for further consideration. This is a focus point for a debate rather than a critical analysis so there are no predetermined right or wrong answers.

A selection of **further reading** for you to consider areas of particular interest in more detail.

Ethics is a complex subject that interlaces the idea of responsibilities to society with a wide range of considerations relevant to the character and happiness of the individual. It concerns virtues of compassion, loyalty and strength, but also of confidence, imagination, humour and optimism. As introduced in ancient Greek philosophy, the fundamental ethical question is WHAT SHOULD I DO? How we might pursue a 'good' life not only raises moral concerns about the effects of our actions on others, but also personal concerns about our own integrity.

In modern times the most important and controversial questions in ethics have been the moral ones. With growing populations and improvements in mobility and communications, it is not surprising that considerations about how to structure our lives together on the planet should come to the forefront. For visual artists and communicators it should be no surprise that these considerations will enter into the creative process.

Some ethical considerations are already enshrined in government laws and regulations or in professional codes of conduct. For example, plagiarism and breaches of confidentiality can be punishable offences. Legislation in various nations makes it unlawful to exclude people with disabilities from accessing information or spaces. The trade of ivory as a material has been banned in many countries. In these cases, a clear line has been drawn under what is unacceptable. But most ethical matters remain open to debate, among experts and lay-people alike, and in the end we have to make our own choices on the basis of our own guiding principles or values. Is it more ethical to work for a charity than for a commercial company? Is it unethical to create something that others find ugly or offensive?

Specific questions such as these may lead to other questions that are more abstract. For example, is it only effects on humans (and what they care about) that are important, or might effects on the natural world require attention too? Is promoting ethical consequences justified even when it requires ethical sacrifices along the way? Must there be a single unifying theory of ethics (such as the Utilitarian thesis that the right course of action is always the one that leads to the greatest happiness of the greatest number), or might there always be many different ethical values that pull a person in various directions?
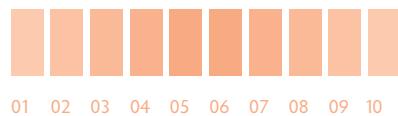
As we enter into ethical debate and engage with these dilemmas on a personal and professional level, we may change our views or change our view of others. The real test though is whether, as we reflect on these matters, we change the way we act as well as the way we think. Socrates, the 'father' of philosophy, proposed that people will naturally do 'good' if they know what is right. But this point might only lead us to yet another question: HOW DO WE KNOW WHAT IS RIGHT?

You
What are your ethical beliefs?

Central to everything you do will be your attitude to people and issues around you. For some people their ethics are an active part of the decisions they make everyday as a consumer, a voter or a working professional. Others may think about ethics very little and yet this does not automatically make them unethical. Personal beliefs, lifestyle, politics, nationality, religion, gender, class or education can all influence your ethical viewpoint.

Using the scale, where would you place yourself? What do you take into account to make your decision? Compare results with your friends or colleagues.
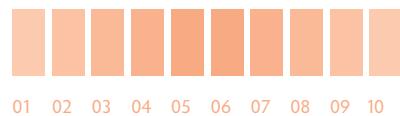
Your client
What are your terms?

Working relationships are central to whether ethics can be embedded into a project and your conduct on a day-to-day basis is a demonstration of your professional ethics. The decision with the biggest impact is whom you choose to work with in the first place. Cigarette companies or arms traders are often-cited examples when talking about where a line might be drawn, but rarely are real situations so extreme. At what point might you turn down a project on ethical grounds and how much does the reality of having to earn a living effect your ability to choose?

Using the scale, where would you place a project? How does this compare to your personal ethical level?

01   02   03   04   05   06   07   08   09   10

01   02   03   04   05   06   07   08   09   10
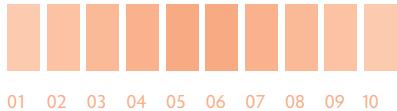
Your specifications
What are the impacts of your materials?

In relatively recent times we are learning that many natural materials are in short supply. At the same time we are increasingly aware that some man-made materials can have harmful, long-term effects on people or the planet. How much do you know about the materials that you use? Do you know where they come from, how far they travel and under what conditions they are obtained? When your creation is no longer needed, will it be easy and safe to recycle? Will it disappear without a trace? Are these considerations the responsibility of you or are they out of your hands?

Using the scale, mark how ethical your material choices are.
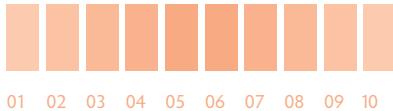
Your creation
What is the purpose of your work?

Between you, your colleagues and an agreed brief, what will your creation achieve? What purpose will it have in society and will it make a positive contribution? Should your work result in more than commercial success or industry awards? Might your creation help save lives, educate, protect or inspire? Form and function are two established aspects of judging a creation, but there is little consensus on the obligations of visual artists and communicators toward society, or the role they might have in solving social or environmental problems. If you want recognition for being the creator, how responsible are you for what you create and where might that responsibility end?

Using the scale, mark how ethical the purpose of your work is.

01 02 03 04 05 06 07 08 09 10

01 02 03 04 05 06 07 08 09 10

One aspect of interior design that raises an ethical dilemma is that of creating interior spaces that may directly affect people's health and well-being. For example, concentrations of VOCs (volatile organic compounds) have been found in some studies to be up to ten times higher indoors than outdoors and are emitted, amongst other things, by paints and lacquers, flooring materials and furnishings. The adverse health effects of overexposure to harmful VOCs can include eye and throat irritation, headaches, fatigue, dizziness and nausea. Electrical fields generated by everyday equipment, such as computers, and excess static electricity created by certain materials, could also be bad for human health. Prolonged exposure to electrical fields may cause increased risk of respiratory diseases and infection from airborne bacteria and viruses. At what point do, or should, interior design projects take into account these, and other, health issues? Is it a responsibility of the interior designer to factor in potential risks based on inconclusive evidence that are still being explored and debated? Or, is this the responsibility of scientific researchers and governments working with the manufacturers of the materials under question?

The Shakers were a religious sect that went to America from England in 1774 seeking freedom from religious persecution. They pursued complete independence from the outside world, which led them to build their own properties and design their own objects.

Shaker interiors were entirely free of ornament, contrasting starkly with the mainstream excesses of the Victorian appetite for the fancy and elaborate. Beadings or mouldings were stripped away. Walls were plain white, but paint research reveals that yellow, red, green and blue were applied to almost all exposed wooden surfaces. Painted floors were kept bare for easy cleaning. On entering a Shaker building one commenter wrote: 'The first impression of all is cleanliness, with a suggestion of bareness which is not inconsistent, however, with comfort, and which comes chiefly from the aspect of unpapered walls, the scrubbed floors hidden only by rugs and strips of carpeting, and the plain flat finish of the wood-work.'

Window frames, chimneys and stairways were all executed with clean lines in basic forms. Shakers believed in 'putting your hands to work and your hearts to God'. The results reflected total simplicity, remarkable functionality and beautifully proportioned craftsmanship. Shakers designed everything with care, believing that making something well was in itself, 'an act of prayer'.

Shakers lived communal lives, so furniture was built and arranged for efficient use by large numbers of people. Large trestle tables (some over 20 feet long) were designed for shared dining. Everything was functional and included chairs, benches, tables and huge banks of storage cabinets with drawers. Lines of wooden pegs around a room were used to hang up chairs and baskets as well as hats. Furniture was made out of pine or other inexpensive woods and so it was light in colour and weight. The interior spaces of Shaker meeting houses included large, open floor space to allow for their religious dances. The important factors within any building were considered to be light, an equal distribution of heat, general care for protection and comfort and other factors that pertained to health and long life. Typical communal bedrooms might contain simple rope beds, washbasins and wood-burning stoves. Storage boxes, clocks, brooms and woven materials were also created, with some products made available to sell.

The Shakers at Mount Lebanon in New York increased their production and marketing of Shaker chairs and were so successful that several furniture companies produced their own versions. By the middle of the twentieth century, as the Shaker communities themselves were disappearing, collectors that appreciated the 'form follows function' modernist approach were drawn to Shaker artefacts. Because of the quality and historical interest, original Shaker furniture is costly and sought after. Oprah Winfrey is one of a number of celebrity collectors and is said to have spent $150,000 on a pine work counter.

If an interior design is inspired by religious belief, does it make the result more ethical?

How might decoration seem more unethical than plainness?

Would you work on providing a Shaker interior to a wealthy private client?

Ornamental pattern work, to be raised above the contempt of reasonable men, must possess three qualities: beauty, imagination and order.

WILLIAM MORRIS
Some Hints on Pattern-Designing (1884)

Have nothing in your houses that you do not know to be useful or believe to be beautiful.
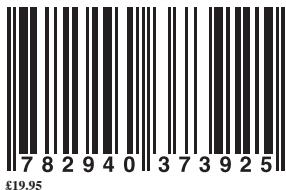
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The Fundamentals of Interior Design
provides a thorough introduction to the
key elements of interior design and the ideas
that underpin them. From researching initial
ideas to realising them in three-dimensional
form, essential concepts are explained
clearly and in detail, effectively communicating
the excitement, emotion and possibilities
of the discipline.

Throughout the text, guidelines are given
to provide structure for nascent designers,
and the reader is encouraged to adapt
and initiate methodologies to suit individual
project needs. This approach is intended
to give designers a belief in their own abilities,
and confidence to tackle different projects
with the unique challenges that each one brings.