

BASICS

ARCHITECTURE

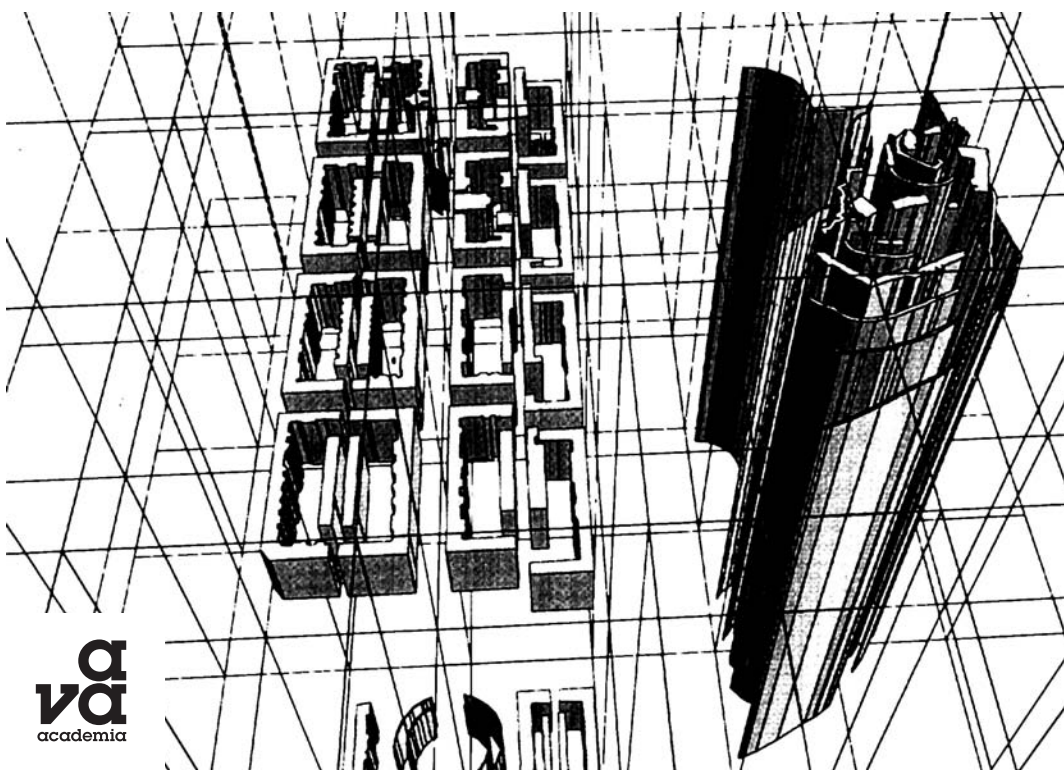
Lorraine Farrelly

C1

representational techniques

n relating to or characterised by representation

n a way of carrying out a particular task especially the execution of an artistic work or a scientific procedure



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representational techniques

Ethical:
aware-
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ava
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An AVA Book

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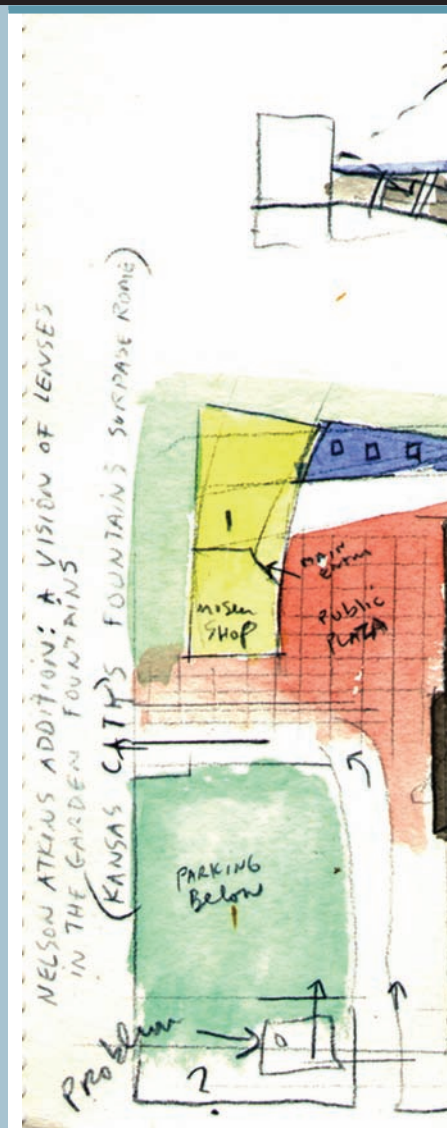
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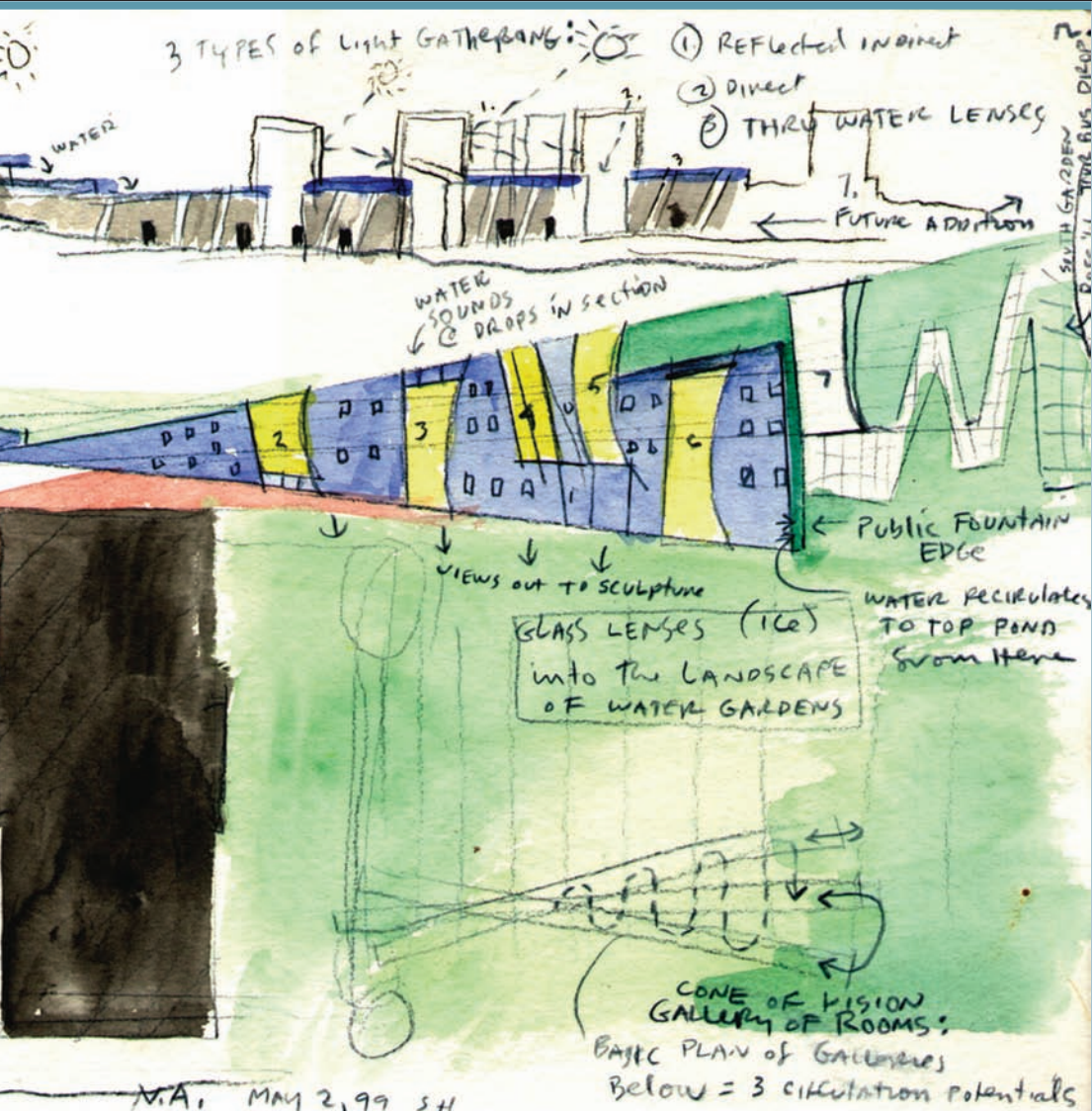
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Project: Nelson-Atkins Museum of Art
Location: Kansas City, USA
Architect: Steven Holl Architects
Date: 2007

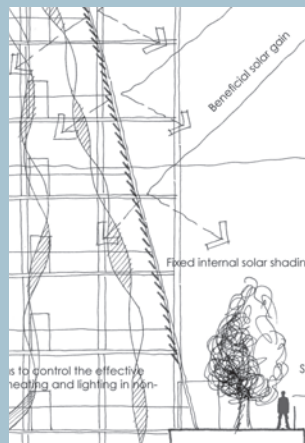
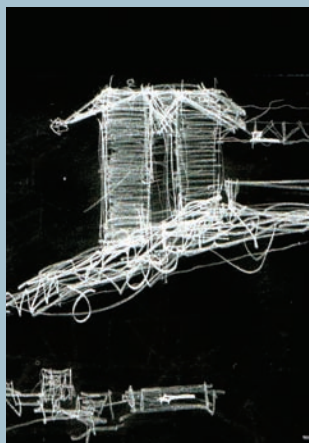
This image brings together all aspects of the architectural scheme. It communicates both the concept of light used in the museum's interior galleries and the sense of the building in the context of its surrounding landscape.



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Representation is an important aspect of any visual or design-based discipline and the techniques for representing architectural ideas are both exciting and challenging. Architectural ideas can eventually become buildings. An idea leads to a concept, which becomes a sketch. The sketch is then developed into a physical sketch model and a set of scale drawings that are explored and investigated in detail.

Representing each of these stages of architectural development requires a variety of skills. Sometimes freehand, loose or intuitive drawings and models, where concept and abstraction are critical, are the best techniques to employ. At other times, the precise detail of CAD drawings might be needed to explain how a building is assembled. The challenge of architectural representation is to generate the right type of image to suit the given stage in the design process.

Architectural drawings employ a kind of language, and the right dialect is needed for a given situation. The language of architectural drawing is varied, but the vocabulary is basic. Ideas are expressed as lines and all lines or strokes on a page are careful and considered. The excitement with architectural representation is to use the language of drawing, to perfect it and develop it so it communicates the architectural idea to become a unique, real architectural experience.

As with all drawing techniques, it is important to practise and develop your own skills and adapt methods to different situations. Within each of the book's six sections you will find an exercise, which will allow you to test and apply the ideas; introduced. A sketchbook (ideally one that has blank, thick paper and is A4-size or larger) and pencil are important tools to have to hand. Whenever you draw or make a mark in your sketchbook, keep it, don't erase it. There are no such things as mistakes in drawing. It's all a visual record of your ideas; some will be better than others, but they all contribute towards something bigger and better. If nothing else, you can always look back at the first pages you started in your sketchbook and see how far you have travelled.

Sketch

This section explores ideas of how to sketch and draw at all stages of the design process.

Scale

This section looks at the range of specific drawing scales that can be used at various stages of the architectural design process. Understanding the application of these scales for different situations is critical.

Orthographic projection

Orthographic projection looks at the measured drawings that explain the idea of the building in two-dimensional form: plans, sections and elevations. These two-dimensional drawings reveal the three-dimensional intention of the building.

Three-dimensional images

These are the most easily accessible images and provide a perspective view of a space, which will give an impression of the experience of the building on a particular site or location. Three-dimensional images are also useful for creating construction and assembly drawings.

Modelling

Modelling ideas allow an exploration spatially of concepts, spaces and form at all stages of the design process. Models can be created physically or using CAD software.

Layout and presentation

The communication of the idea is critical. How it is organised and presented is an important design consideration.

How to get the most out of this book

This book introduces different aspects of representational techniques in architecture via dedicated chapters for each topic. Each chapter provides examples of the creative use of different representational techniques in architecture at each stage of the design process. The examples shown are contributions from a range of contemporary architects and, together with detailed analysis in the text, form a book that offers a unique insight into the practical and professional world of architectural design.

Chapter openers

These introduce and outline the key information in each chapter.

Scale

34 | 35

Project: Phare Tower
Location: Paris, France
Architect: Morphosis
Date: 2006

This schematic design by architects Morphosis is a proposal for a structure in the Parisian district of La Défense. The Phare Tower is a 300 metre-high commercial building that is scheduled for completion in 2012. This computer-generated photomontage image provides an idea of the impressive scale of the proposed structure, which is set to become an iconic form in the city.

Scale has multiple meanings in architecture. Drawings can be to scale (adhering to an established or agreed reference or system), 'out of', or 'not to' scale. Historically, architects have employed a range of scale systems. Classical Greek and Roman architecture, for example, used a modular system of measurement. In classical architecture each module was the width of the column base, and this was used to determine the classical system of orders and their relative proportioning. Le Corbusier also used a modular system based on the proportions of the human body, which ensured that his architectural designs related to human scale.

To represent a space or building, comparative scale systems are needed to design, develop and explain the architectural idea. Plan, section and elevation drawings and models are the conventions used to communicate the idea; however, they need to be created using a system that can be measured and is understood by the architect, builder and client alike.

When drawing to scale, the right scale system needs to be used for the appropriate context. Smaller or larger scale investigations will lend themselves better to different types of projects, for example, the design of a city will be better understood in large scale, whereas the design of a piece of furniture will necessitate a smaller scale system and drawing.

Understanding scale is to connect with the relative size of cities, places, buildings, spaces and objects and to learn how they in turn connect with one another and the people that occupy and use them.

Sketch: **Scale** © Morphosis Architects

Images

Examples from contemporary architects and designers bring the principles under discussion to life.

Captions

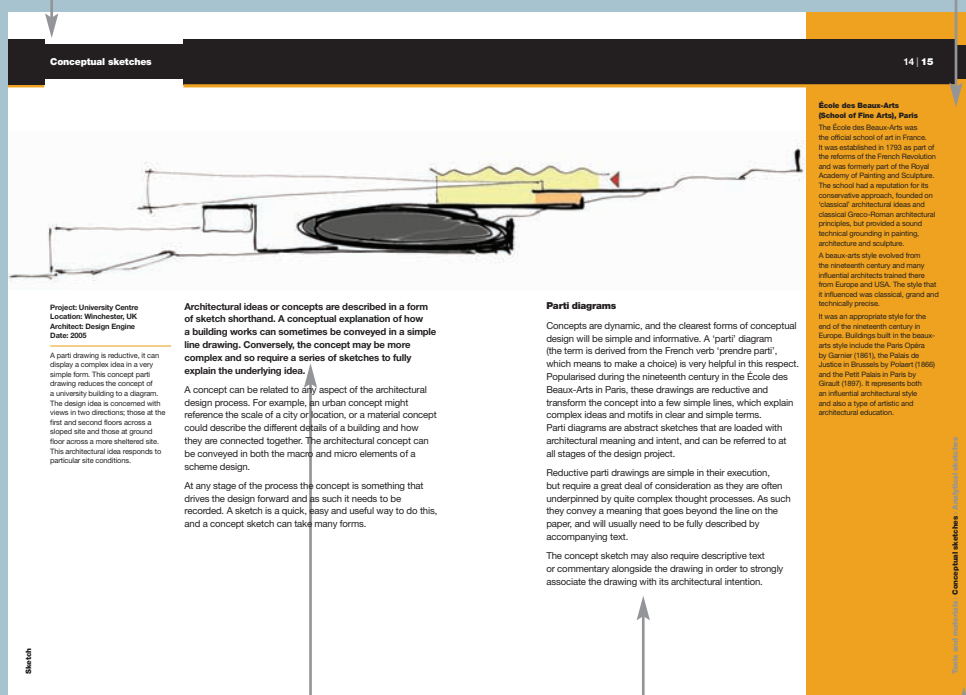
Provide contextual information about each featured project and highlight the practical application of key principles.

Section headings

Each chapter unit has a clear heading to allow readers to quickly locate an area of interest.

Information panels

Supporting information panels provide contextual and supplementary content, which supports the body text.



Introductions

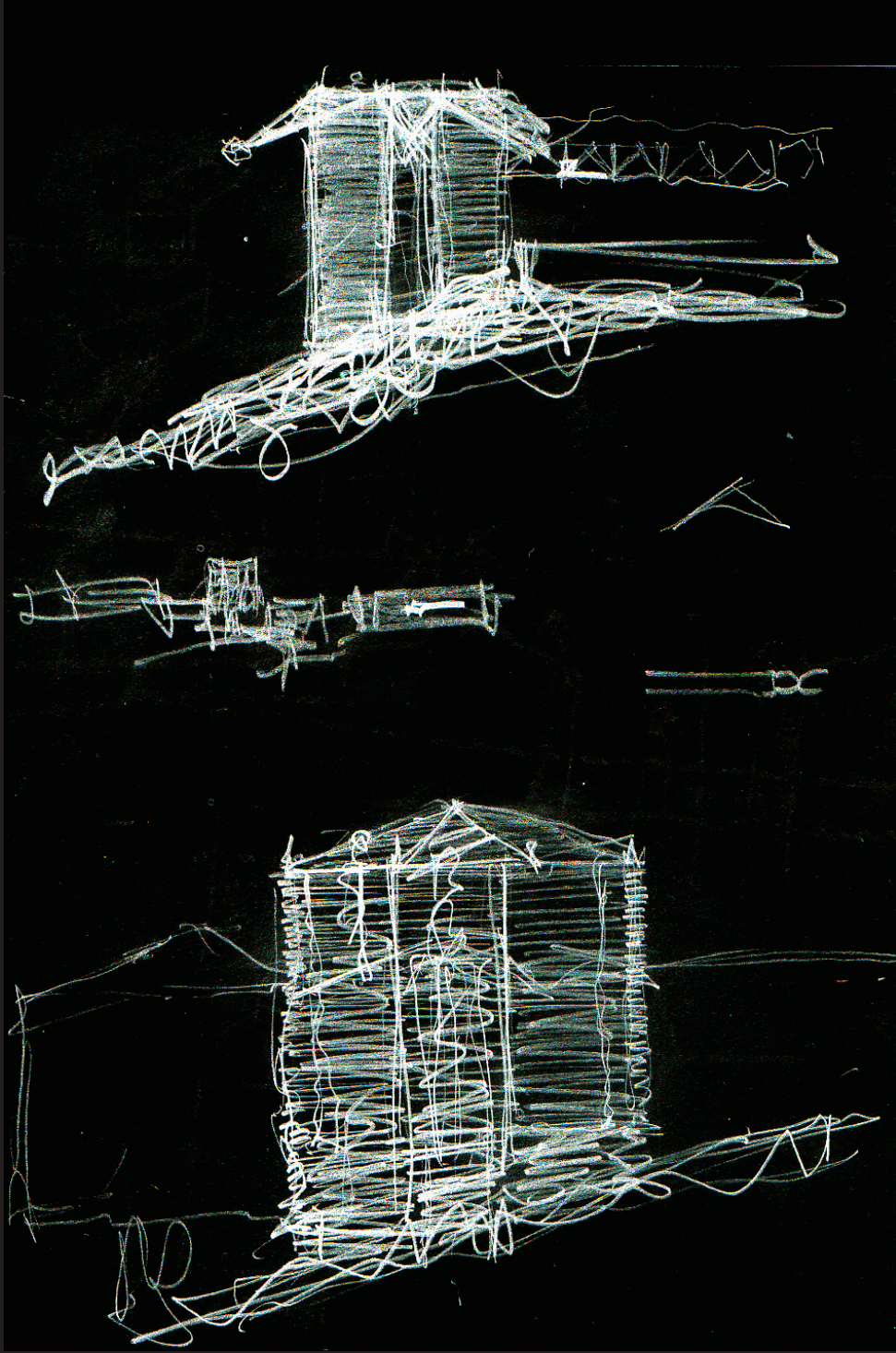
Each unit's introduction appears in bold text and outlines the concepts that are to be discussed.

Body text

In-depth discussion of working methods and best practice is covered in the book's body text.

Chapter navigation

Highlights the current chapter unit and lists the previous and following units.



Project: Kielder Observatory
Location: Northumberland, UK
Architect: Hyde + Hyde
Date: 2005

The concept underlying this scheme was a homage to the cosmos. This pencil sketch shows an idea of a building as a telescope housing, opening out as a series of steel petals to reveal the sky.

The inspiration for this was a flower, with petals opening upwards and outward towards the sun. The concept sketch illustrates how the building reacts to nature in a similar fashion; it is like a piece of machinery that adapts itself and transforms to allow the view of the night sky.

A sketch by definition is a quick, loose and open drawing. It is the speed inherent in this sort drawing that makes it a powerful way to describe an idea. Forms of sketching can range from providing a kind of visual note-taking, observing real conditions and situations, to the production of analytical drawings that deconstruct an idea or concept.

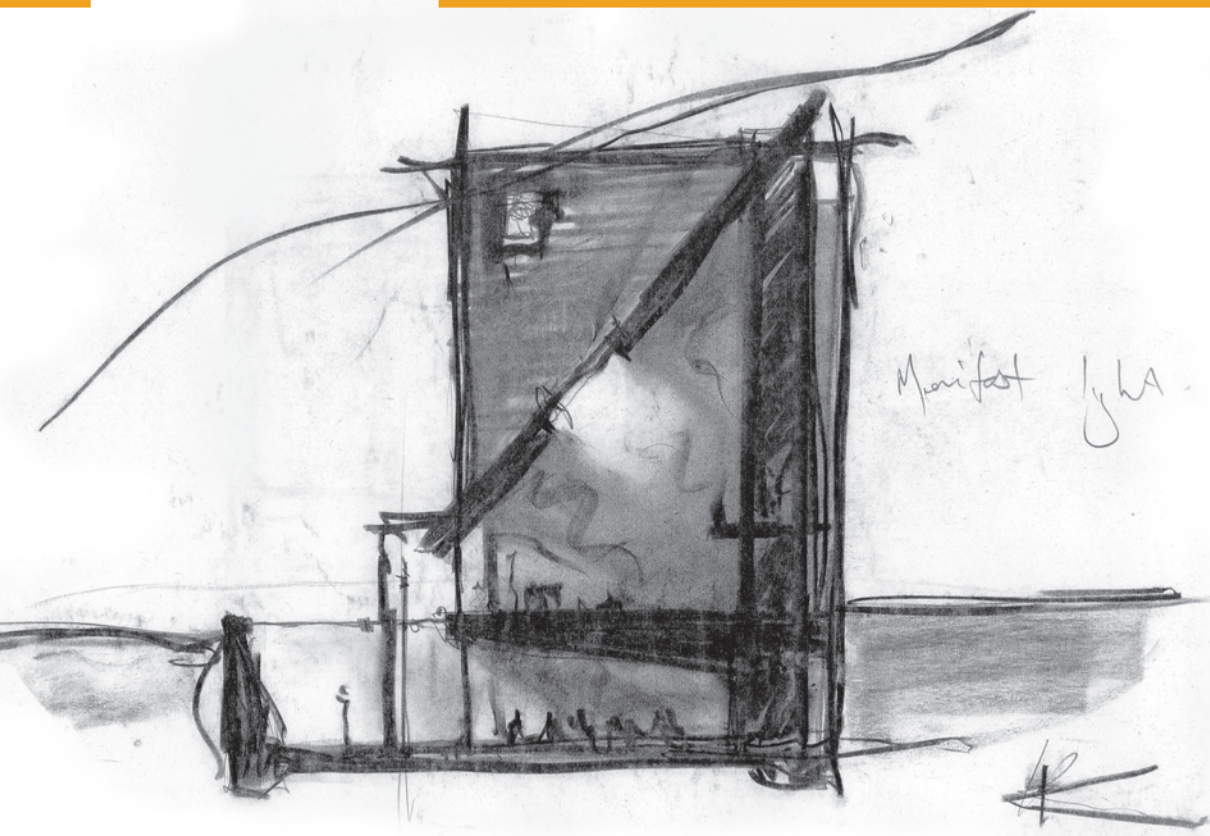
Sketches can be categorised according to concept, analysis and observation.

Conceptual sketches can reveal the essence of a complex idea. The challenge in the concept sketch is to clearly and concisely communicate the design intention. A concept sketch may be drawn at the beginning of the project, but it should still be relevant on the project's completion.

Analytical sketches can be used to analyse a building, space or component. These can be created at any stage of the design process. In a project's initial stages they may convey a design intention; later on in the design process they can explain ideas associated with journeys through the building or aspects of construction.

Observational sketches can be used to describe aspects of buildings, exploring materials or space in detail.

There are many sketching techniques that can be explored and further developed until individual preferences and a personal style are established. Stylistic variations will be in accordance with the medium used (pen, pencil, charcoal etc.); the different use and application of colour, tone or texture; the use of collage and material; the thickness or the sparseness of the line or the size and scale of image. Above all else, a personal sketching technique needs to be developed through practice and experimentation.



Project: Chapel of the Holy Wash
Location: Swansea, Wales
Architect: Hyde + Hyde
Date: 2002

This charcoal sketch shows the relationship between the chapel and the landscape, and also conveys the sense of sanctuary that the building offers. The use of charcoal brings an intense quality to the drawing and allows the light entering the space to be clearly understood.

Sketching requires a range of tools, and first and foremost is the sketchbook itself. When selecting a sketchbook, important factors to consider are convenience and portability and the purpose of your intended drawings. It's also important to purchase the best quality paper you can afford. Better quality paper will be more flexible as it will work equally well if sketching in pencil or pen, or if using watercolours.

An A4 (210 x 297mm) sketchbook is a good starting point, as the page is large enough to accommodate experimentation with different sketching techniques and it allows bigger images to be produced. Alternatively an A5 (148 x 210mm) sketchbook is very useful for travel because it fits neatly into a pocket and can be carried easily. An A3 (297 x 420mm) sketchbook is excellent for life and large-scale observational drawings (such as elevations).

Line hierarchy

When sketching it's an excellent idea to have a range of pens, pencils and colouring media at your disposal because the thickness of the lines in a sketch are extremely important. There is a hierarchy associated with the line and its values vary in sketching. A fine line can be used for shading and detail and a thicker, heavier line will suggest form and substance.

Different drawing media will affect the line hierarchy. Fibre-point pens, which are available in a range of nib sizes, are useful for capturing detail. Pencils can also supply a range of line weights, as well as being available in soft (B) and hard (H) leads. Using varied pencil types will allow a range of differently styled sketches to be developed. A 0.5mm propelling pencil, with a range of hard and soft leads, is another versatile drawing tool.

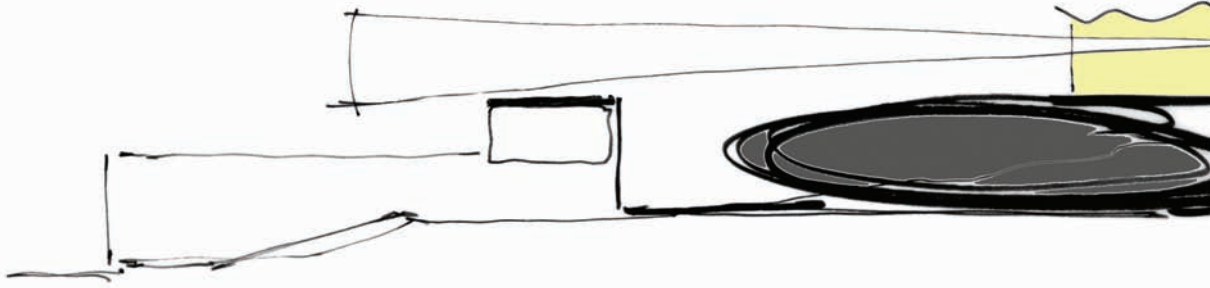
Sketching with a black ink pen is an important skill to develop because the contrast that the ink line, produce against the paper, and the permanency of the line, produce a 'definite' image.

One tool that probably isn't necessary is an eraser. When sketching, practice is all important and even the mistakes can be beneficial, so it makes sense not to rub them out! Remember, a sketchbook is a collection of drawings and reflects the development of techniques and ideas.

Tools for architectural drawing

To enjoy sketching, and achieve a range of results, it is important to have different sorts of equipment to experiment with. Simple drawings can be produced with a single sheet of paper and a pencil. Then, by further considering the type of pencil and the type of paper, the possible variations are endless. With each drawing, experiment with a new tool or medium. Listed below is a range of equipment that can help you vary and further your drawing experiences.

- Mechanical pencils (0.3 or 0.5mm)
- Fibre-tip pens (0.2, 0.5, 0.8mm)
- Adjustable set square (20cm)
- 45 degree set square
- 60 degree set square
- Circle template
- 30cm scale rule
- Roll of white tracing paper
- Roll of detail paper
- A3 tracing pad (60gsm)
- A3 film pad (50micron)
- Drawing board
- Sketchbook
- Tape measure
- Set of French curves



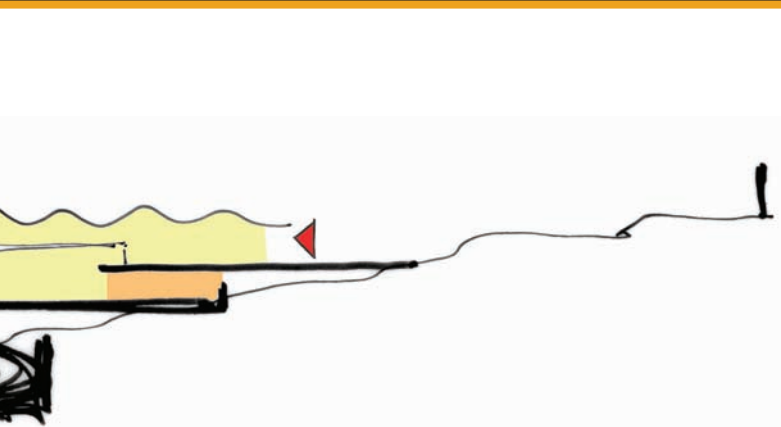
Project: University Centre
Location: Winchester, UK
Architect: Design Engine
Date: 2005

A parti drawing is reductive, it can display a complex idea in a very simple form. This concept parti drawing reduces the concept of a university building to a diagram. The design idea is concerned with views in two directions; those at the first and second floors across a sloped site and those at ground floor across a more sheltered site. This architectural idea responds to particular site conditions.

Architectural ideas or concepts are described in a form of sketch shorthand. A conceptual explanation of how a building works can sometimes be conveyed in a simple line drawing. Conversely, the concept may be more complex and so require a series of sketches to fully explain the underlying idea.

A concept can be related to any aspect of the architectural design process. For example, an urban concept might reference the scale of a city or location, or a material concept could describe the different details of a building and how they are connected together. The architectural concept can be conveyed in both the macro and micro elements of a scheme design.

At any stage of the process the concept is something that drives the design forward and as such it needs to be recorded. A sketch is a quick, easy and useful way to do this, and a concept sketch can take many forms.



Parti diagrams

Concepts are dynamic, and the clearest forms of conceptual design will be simple and informative. A 'parti' diagram (the term is derived from the French verb 'prendre parti', which means to make a choice) is very helpful in this respect. Popularised during the nineteenth century in the École des Beaux-Arts in Paris, these drawings are reductive and transform the concept into a few simple lines, which explain complex ideas and motifs in clear and simple terms. Parti diagrams are abstract sketches that are loaded with architectural meaning and intent, and can be referred to at all stages of the design project.

Reductive parti drawings are simple in their execution, but require a great deal of consideration as they are often underpinned by quite complex thought processes. As such they convey a meaning that goes beyond the line on the paper, and will usually need to be fully described by accompanying text.

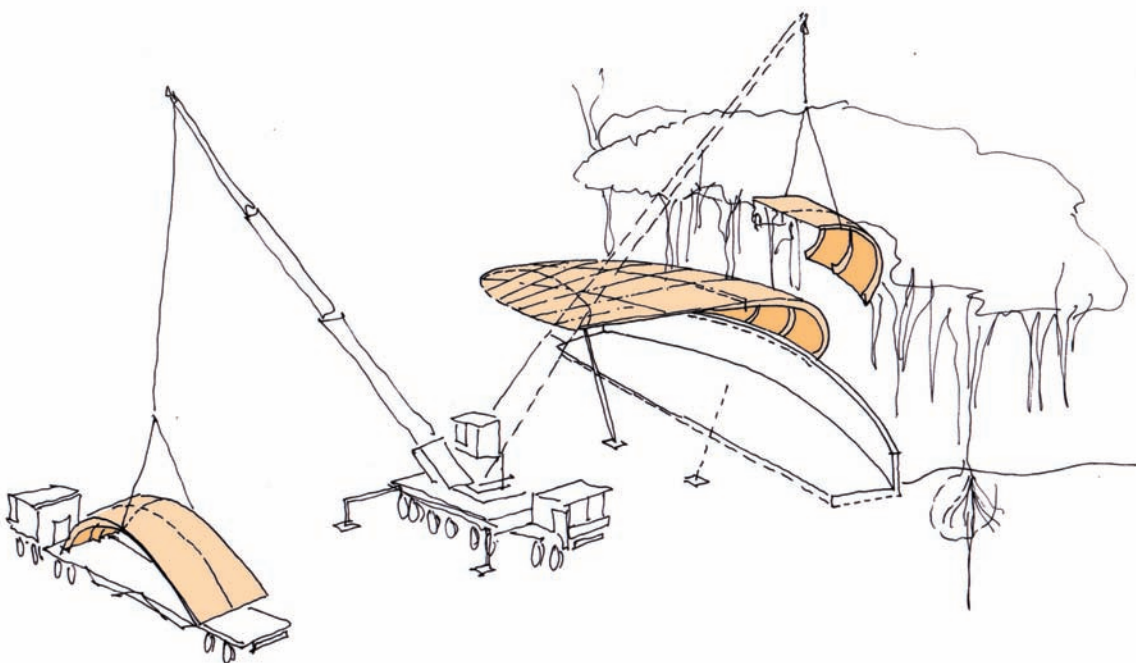
The concept sketch may also require descriptive text or commentary alongside the drawing in order to strongly associate the drawing with its architectural intention.

École des Beaux-Arts (School of Fine Arts), Paris

The École des Beaux-Arts was the official school of art in France. It was established in 1793 as part of the reforms of the French Revolution and was formerly part of the Royal Academy of Painting and Sculpture. The school had a reputation for its conservative approach, founded on 'classical' architectural ideas and classical Greco-Roman architectural principles, but provided a sound technical grounding in painting, architecture and sculpture.

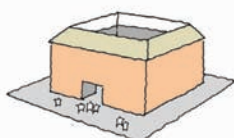
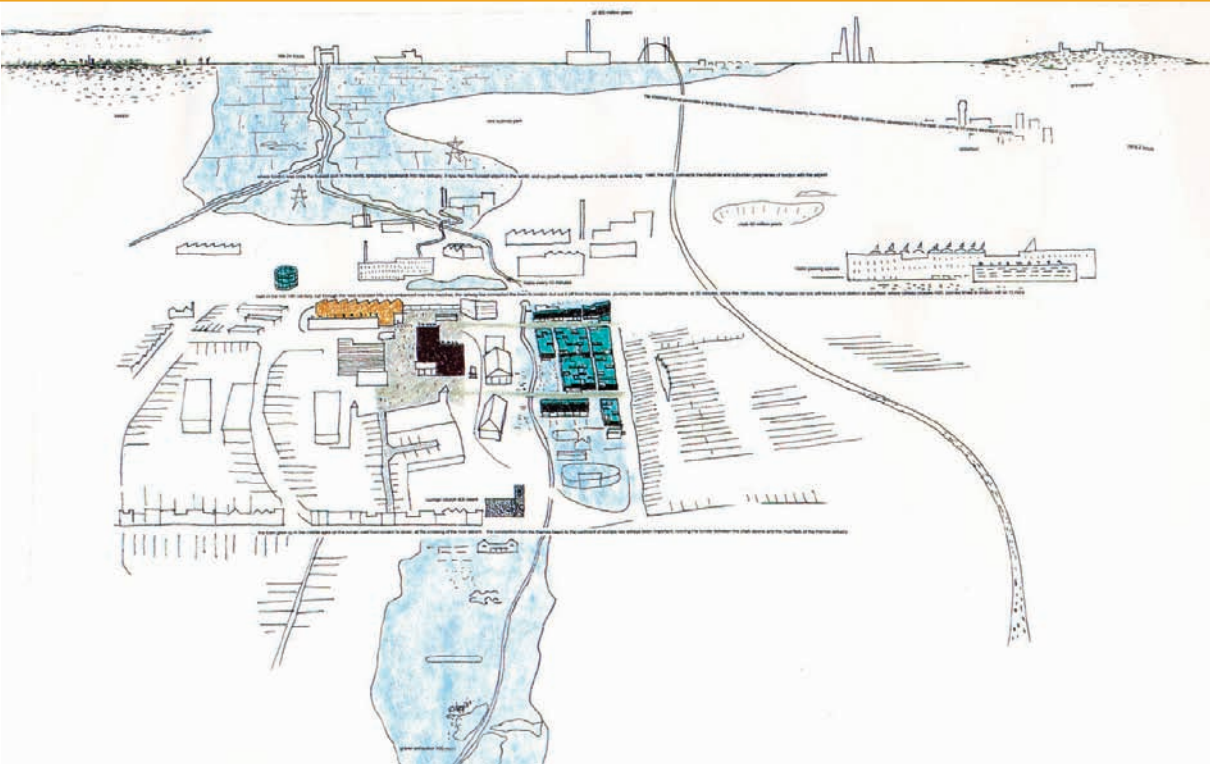
A beaux-arts style evolved from the nineteenth century and many influential architects trained there from Europe and USA. The style that it influenced was classical, grand and technically precise.

It was an appropriate style for the end of the nineteenth century in Europe. Buildings built in the beaux-arts style include the Paris Opéra by Garnier (1861), the Palais de Justice in Brussels by Polaert (1866) and the Petit Palais in Paris by Girault (1897). It represents both an influential architectural style and also a type of artistic and architectural education.



**Project: The Visitor Centre,
Hardwick Park
Location: Durham, UK
Architect: Design Engine
Date: 2006**

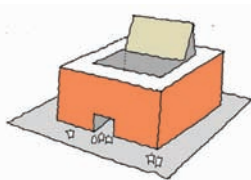
These images describe a construction process for a prefabricated project. The image is drawn as a perspective sketch to explain the removal of the prefabricated elements from a truck and details how they will be fixed into place on a hard-to-access site. The drawing is self-explanatory and needs no accompanying text, it simply describes a process of assembly and construction.



The old fencing school
(c. seventeenth century)



The Globe Theatre
(c. seventeenth century)



Theatrum Gedanense
(twenty-first century interpretation)

Project: Theatrum Gedanense
(left)
Location: Gdansk, Poland
Architect: Design Engine
Date: 2004

These sketches are not created to a particular scale, but using simple shapes they explain the idea of the Theatrum Gedanense's roof by referencing other building forms, including a fencing school and another theatre design. The design proposes a roof that can be both open and closed, creating a flexible use of the space to produce an open-air theatre and an arena.

Project: Dartford Town Centre
(above)
Location: Dartford, UK
Architect: Witherford Watson Mann
Date: 1998

This is a bird's eye perspective sketch of a proposal for a town centre design. In this sketch it is possible to see that the east-west road and rail infrastructures are flattened and used as a series of horizons, with the River Thames at the top of the sketch and the River Darent running through it. The balance of the proposal's volumes, public spaces and landscapes are shown in this drawing in the context of their metropolitan and landscape setting.

Analysis of an idea requires a way of thinking that separates, simplifies and clarifies. An analytical sketch usually follows the same working principles, and as such is a device that can help explain complex aspects of architecture.

Analytical drawings can be used to isolate specific aspects of an architectural idea, and describe them as a series of parts or components. So, for example, analytical drawings could be used technically to describe the structural system of a building, or equally take an environmental approach and describe how sunlight moves through a space, or they may even describe a building's construction or assembly system. When designing building systems, architects will use analytical sketches to work through their ideas and develop particular responses that will shape their overall design approach.

The analysis of an idea needs to be logical and easy to understand. The drawings that first begin the process of an architectural design are site analysis sketches. Whether these analyse a building, an urban site or a landscape, these drawings describe what already exists – whether it be an aspect of the local environmental conditions, or the type of materials used on the site, or a reference to a previous event – as a series of critical diagrams. These analytical diagrams separate ideas that will inform and influence the subsequent architectural design.

Using analytical sketches to record site information produces a map of the site's building forms, histories and its topography, which combine to create a full picture of the site conditions. They will reference aspects of the site that can be described 'as is', in the present, and 'as was', in the past. Analytical sketches are effectively a form of on-site note-taking.