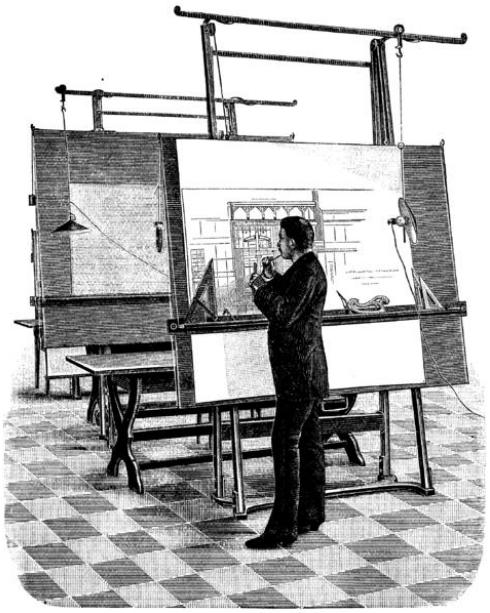
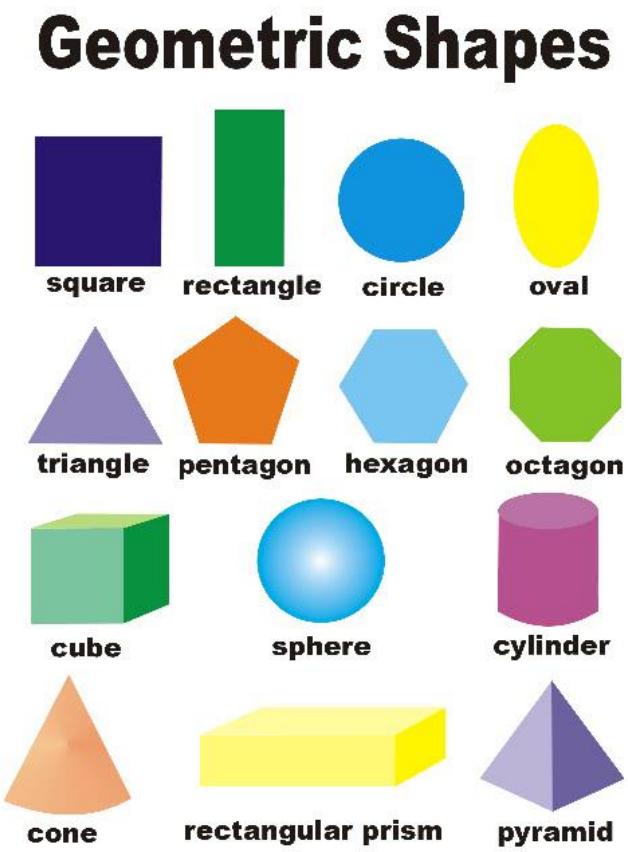
Architecture

The art or practice of designing and constructing buildings.

Who is an Architect?

A person qualified to design and supervise the construction of buildings or other large structures. The architect will interpret the needs and requirements of the client and combine these with other issues such as site conditions, building and planning regulations and technological considerations to create the design of the building.





The Pentagon

the headquarters of the USA Department of Defense

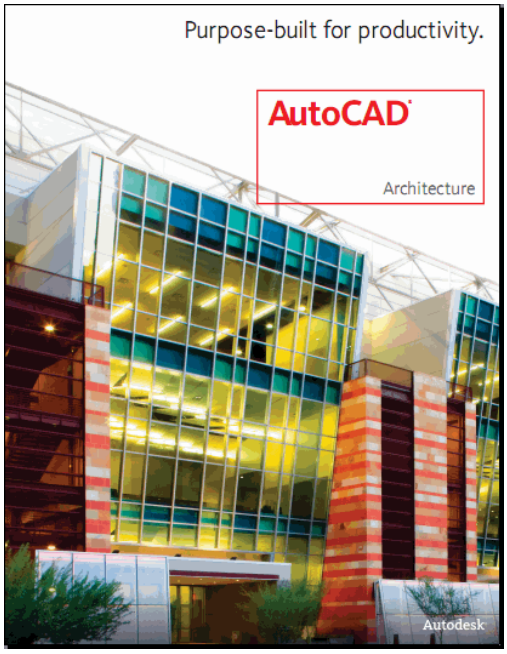
Egyptian pyramids

CAD

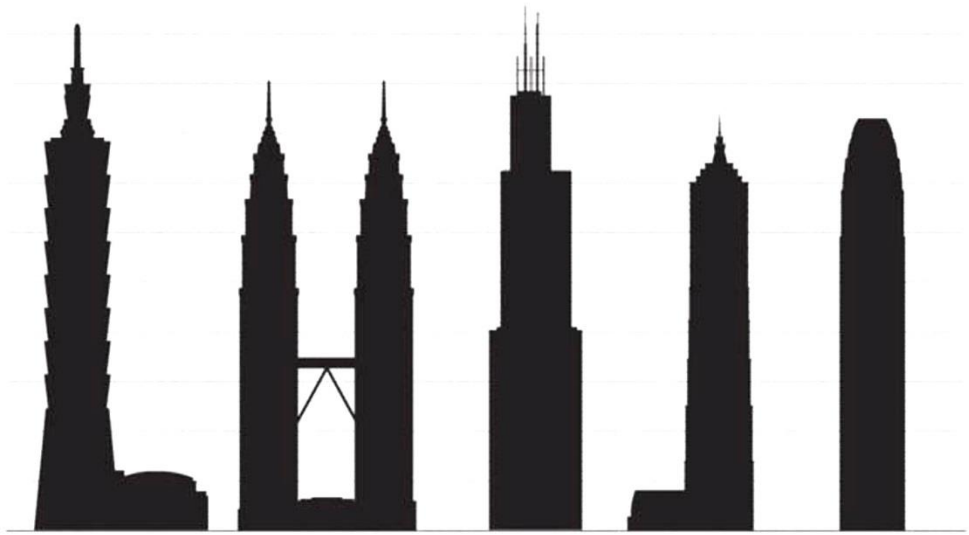
Computer-aided design

CAD may be used to design curves and figures in two-dimensional (2D) space; or curves, surfaces, and solids in three-dimensional (3D) space.

Computer-aided design and modelling has opened the door for architects to use construction materials more creatively.

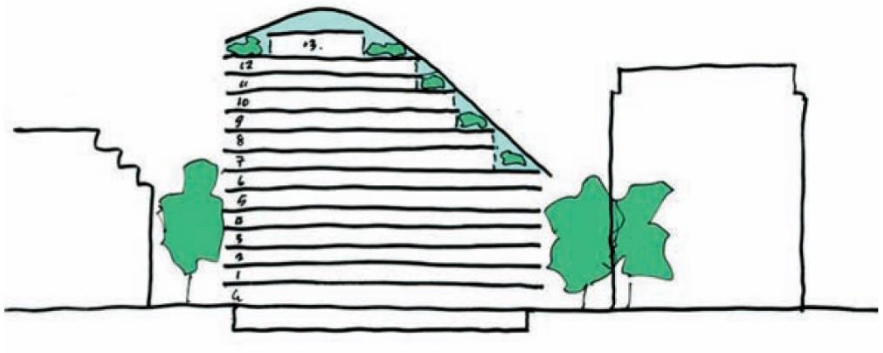


Skyscraper



A tall, multi-storey building. Skyscrapers are different from towers or masts because they are habitable. The term was first applied during the late-nineteenth century, as the public marvelled at the elevated, steel-frame buildings being erected in Chicago and New York, USA. Modern skyscrapers tend to be constructed from reinforced concrete. As a general rule, a building must be at least 150 metres high to qualify as a skyscraper.

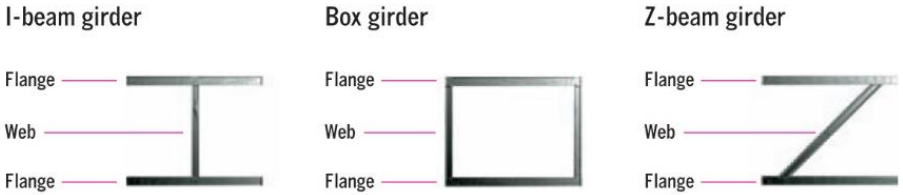
Storey



The space between two floors, or floor and roof, of a building. A building that is divided into more than three or four levels is known as a multi-storey building. The height of each storey depends on factors such as the materials used, the function, the location and other aesthetic and physical considerations.

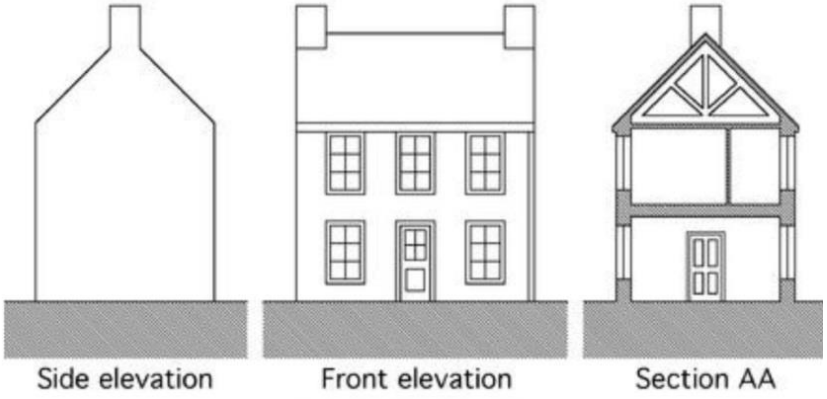
Girder

A large steel or iron beam used in construction. Girders are produced in different forms such as an 'I', box, or 'Z' shape. A girder is the main horizontal support of a construction, and it supports the smaller beams. The use of girders in steel-frame buildings allowed for the development of skyscrapers due to their lightweight nature. The building pictured is being constructed with I-beam girders.



Elevation Drawing

An elevation is the exterior wall of a building, and an elevation drawing is a representation of this wall or façade. It is a two-dimensional representation of the façade, showing the position of windows, doors and any other details of the building exterior. It contains no perspective, so things close up and far away are drawn at the same scale.



Adobe (mud brick)

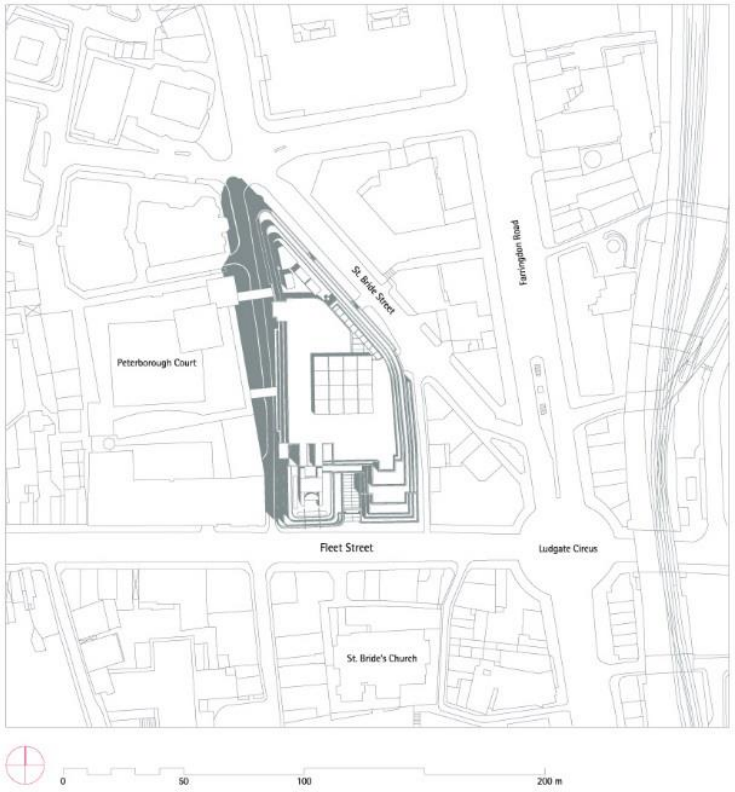
A natural building material made from sand, clay and organic items such as straw. Adobe can be shaped into bricks. It is not fired, but instead it is dried in the sun and can be used to reduce extremely hard and durable structures. It is used extensively in hot, dry climates due to the lack of other available building materials and has the ability to store and release heat slowly, thus allowing buildings to remain cool during the day. Adobe is a common building material in many parts of the world including the Middle East and South America.

Reinforced Concrete

Concrete that has been reinforced with steel rods or mesh. Concrete is very strong in compression, but weak in tension and so without the reinforcement it would be too brittle to withstand stress. Reinforced concrete was first developed in 1848, but it was not until 1893 that it was first used in construction (to build the Pacific Coast Borax's refinery in California, USA).

Reinforced concrete is typically used for slabs, walls, beams, columns, foundations, frames and many other building elements. The rods or mesh are placed within the mould or shuttering first and then the concrete is poured in. As the cement hardens it attaches to the textured surface of the steel,

North Point



A symbol on a map or architectural drawing showing the direction of north. The North Point is used to help orientate the person who is looking at the drawing or map, and it aids the identification of the exact physical location in which the building is situated. It is also useful for identifying such issues as the position of the sun and the shade.

Truss

A framework made of a number of timbers that are joined together to bridge a gap. The truss is most commonly seen supporting a roof. The triangular roof truss sits upon, and is supported by, walls or columns at either end; the sloping sides support the weight of the roof, while the horizontal member ties the ends together. The weight of the roof is transferred to the sloping timbers and subsequently to the walls of the building; the horizontal timber stops the whole structure from opening up. The sloping sides are therefore in compression while the horizontal piece is in tension. Together they form a strong and stable structure.

Minaret

A tall, narrow spire next to an Islamic mosque. The Minaret features a high balcony that is used by the muezzin to make the adhan (call to prayer). A minaret has three main parts: the base, a tapering cylindrical or polygonal shaft that is supported by a spiral staircase, and a gallery or balcony.

This minaret (above) is attached to the sixteenth-century Mosque of Suleyman the Magnificent on the Greek island of Rhodes.

Orientation

The specific positioning of a building. Orientation can add significance to a building: it may be designed to catch the sunlight at a precise time of day, or to take advantage of a particular view, or perhaps to respond to its urban environment.