

ARCHITECTURE

Building a Building (February 2019)

This month one of our members gave a talk on how to build a building, going through the various stages involved. This was based on his personal experience of a career working as a mechanical engineer in Hampshire County Council's Architects Department, involving the building of schools and other public buildings. Note – several of the steps below are iterative and run in parallel. Sketches from freepik.com.

Step 1: Impress the Client

The client's needs dictate the architecture, albeit within what is allowed by regulations. If they want something fancy then that's their prerogative. The aim at this stage is to get a clear idea of the functions that the building must perform and any specific client needs.

Step 2: Prepare a Brief

Get first thoughts on paper – initial concepts, use of space, disabled access etc. Consider sources of light.

Step 3: Initial Designs

Coloured sketches that give an overview of how the building might look. In the past this would have been hand-drawn on paper, but today it is mostly done by CAD (Computer-Aided Design) programmes.



Step 4: Structural Engineer

Many public buildings use steel frames, therefore a structural engineer is needed to calculate stresses and to convert the architect's overview into a practical design. Quite often these steel elements are made a feature rather than hidden behind brickwork or plasterboard.

Step 5: Quantity Surveyor



As the design takes shape a quantity surveyor develops a Bill of Quantity (BoQ), outlining the different materials needed and their cost. Overall, he/she controls the budget and finalises the accounts once the building is completed. The BoQ is vital information that is needed before inviting tenders from contractors.

Step 6: Model Making

Clients find it difficult to visualise what a building will look like from drawings, so it is quite common to develop a scale model. Modellers are quite adept at improvising by adapting objects around them as parts of a model.

Step 7: The drawings

These were traditionally printed off along with the BoQ and used to invite contractors to tender. These days most of this information is made accessible online. The drawings are the essential documents used throughout construction.



Step 8: Breaking ground

Planning permission has been granted and the successful contractor chosen. The start of building is most often celebrated with a breaking ground ceremony where an eminent person will dig the first sod. The spade used may well be hung up alongside a plaque in the finished building or at the contractor's.



Step 9: Building!

These days health and safety dictates hard helmets, hi-vis jackets, sturdy boots etc. Sites are also fenced and access strictly controlled. The contractor is in charge of the site and builds according to the drawings.

Step 10: Clerk of Works

A clerk of works is employed by the client and acts as the client's representative on the building site. As the building progresses it is he or she who signs off the different stages.

Step 11: Monthly Site Meeting

Run by the site agent, this brings together all those involved in construction to get progress reports. The client or their representative may also attend. The venue for these meetings is usually a hut or Portakabin® on site.



Step 12: Electrical Engineering

The shell of the building is complete. Now the electrical services have to be installed throughout the building. A large amount of wiring to power points, lighting, built-in appliances, security controls etc.

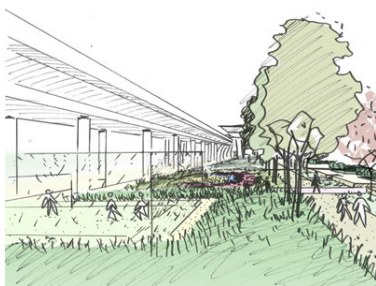
Step 13: Mechanical Services

Alongside the electrics goes the installation of mechanical services which covers a wide range of facilities including plumbing, heating, ventilation, air conditioning, lifts etc.

Step 14: Internal Design and Fitting

Quite late in the overall process this is the time when internal fittings, colour schemes, light fittings and everything that the client needs to make the building perform its function take place.

Step 15: Landscaping



Again, late in the day the detailed landscaping plan takes place. After the building contractors have left (ideally!) trees and shrubs are planted, pathways laid and anything that will make the building environment pleasant and enjoyable for its users. Cynically, our speaker noted that you can often tell if the construction phase went over budget by how good the landscaping is – i.e. how much money is still left in the contract! (Photo: Designing Buildings Wiki)

Step 16: Handover

This is the formal handover when the building is deemed "finished" and ready for occupation. However, few buildings are without some snags during the initial period of occupation.

Step 17: Official Opening

This is usually attended by local dignitaries, those most closely involved in its design and construction take a back seat.

Other Observations

Achieving awards is something that architects strive for. The speaker showed images of places that had received such awards including Burnham Copse School in Tadley, Hampshire Record Office, Beadles School in Petersfield, and in Winchester the Cathedral Learning Centre and Westgate School.