



## Construction and the Built Environment – Unit 2

2.6 Drawing two-dimensional (2D) plans and 2.7 Creating three-dimensional (3D) virtual models and plans

### 2D DESIGN SOFTWARE

**2D design software** is used to produce design drawings and plans. The following are examples of professional-quality design drawings and plans:

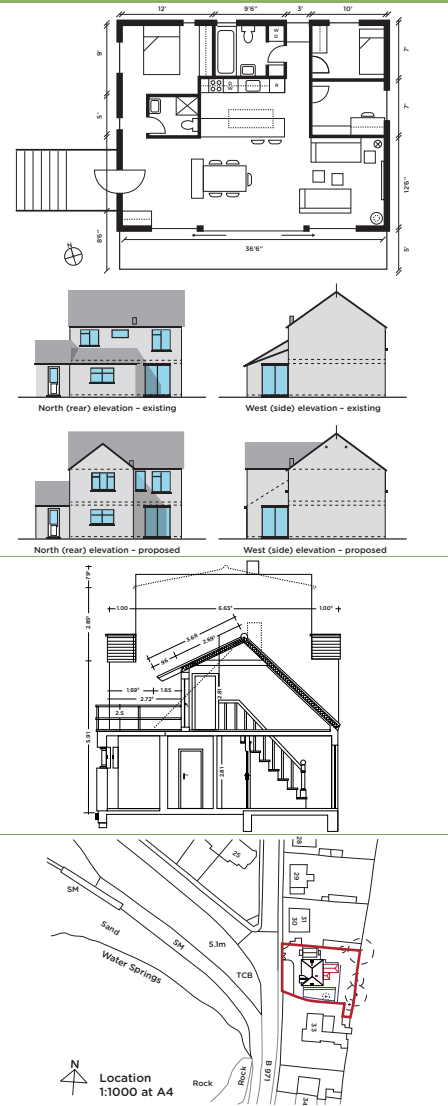
A residential floor plan of a first-floor layout with symbols is used to show construction details, fixtures and fittings.

Dimensional conventions are followed, and an appropriate scale is selected.

Four side elevations of a building design. Shading, textures and scaled human figurines have been skilfully used to communicate realistic presentations of the design proposal.

A cross-sectional view, allowing internal constructional details to be communicated without walls obstructing the view.

A block or location plan, outlining the location and surrounding topography of a proposed construction project, is often a requirement in planning permission documentation.



### SCALE

Completed proposals are produced to an appropriate **scale** according to the context in which they are to be used:

- a block plan at 1:1000
- a room plan at 1:50
- a floor plan at 1:100
- design details at 1:5.

### 3D VIRTUAL MODELS

CAD software is used to develop **3D virtual models** of proposed construction projects. These models can be highly realistic or even photo-realistic representations of buildings or structures, rendered to illustrate materials, colours and textures.

The benefits of using 3D software to communicate design proposals include the capability to:

- apply scenes, backgrounds and surroundings
- render the external finishes (colour and texture)
- import furniture, fixtures and fittings from a component library, and scale to fit 3D models
- create 360° views that can be rotated and zoomed in and out
- render internal and external views using a palette of stylised effects such as:
  - landscape architecture style
  - urban planning style
  - wireframe
  - sketch style
  - construction documentation style
- annotate building models and plans to communicate technical data
- perform complex mathematical and spatial calculations.

