

# DRAWING STANDARDS, PROTOCOLS & CONVENTIONS

Audiences, Purpose and  
Benefits

# ENGINEERING AND CONSTRUCTION DRAWING

Standards, Protocols and conventions in engineering and construction drawings exist to allow absolute coherence and universality across all technical graphic audiences. Technical Audiences could include, but are not limited to the following:

- Designers
- Architects
- Architectural technicians
- Landscape architects
- Construction trades
- Building/Quantity surveyors
- Consultant engineers
- Manufacturers

Protocols and standards exist to eliminate ambiguity within engineering and construction drawings. As drawings will be used by and produced for a number of graphic audiences certain rules must be followed to allow for clear understanding.

Technical drawings can also be used for a variety of purposes and may require more than one company/audience input meaning working drawings could be edited/formatted by different people. Standards, conventions and protocols allow for this to happen as drawing conventions create a universal language. Standards, Conventions and Protocols refer to BS8888 which is British Standard for technical product documentation, geometric product specification, geometric tolerance specification and engineering drawings.

# SECTIONS AND STEPPED SECTIONS

There is a variety of sectional views that can be employed to aid the clarity and understanding of production drawings. For complex engineered objects there may be a requirement for multiple or even stepped/part sections, these are commonly known as local or part section, half section, revolved section or removed section.

Step sections are used when it would not be desirable to show full section or multiple sections of the same object. Stepped or Partial sections allow the audience to see interior details without over complications. Partial Views can also be used to enlarge a detail from a section to improve clarity. The benefit of these drawings are to allow technical graphic audiences to draw relevant information from drawings with minimal confusion/ambiguity. Section drawings allow an interior view or internal information to be explored in orthographic views. Drawing should be clear and use standard conventions.

# SCALING, TOLERANCES AND LAYERING

Scaling: Scale, in construction and engineering drawings, means the proportion or ratio between the dimensions adopted for the drawing and the corresponding dimensions of the object. Scaling is used in a variety of contexts for the drawing and the corresponding dimensions of the object. Scaling is used in a variety of contexts in multiple technical graphic drawing types. Scaling allows drawings to be printed or published on smaller or larger scale. “Scaling up” is usually associated with small details being explored/shown at a larger size to improve clarity. Scaling is not always possible, and users should not assume a drawing can be scaled to infer a dimension not labelled. This is bad practice and will often be noted on a drawing “DO NOT SCALE DRAWING”.

# SCALING, TOLERANCES AND LAYERING

**Tolerances:** Tolerancing is the practice of specifying the upper and lower limit for any permissible variation in the finished manufactured size of a feature. The difference between these limits is known as the tolerance for that dimension. Tolerances are often used on manufacture drawings to allow for some movement in manufacturing accuracy. In practice, all dimensions are subject to tolerances. There are however, two distinct types to consider: functional and non functional dimensions. Tolerances will also be used when manufactured items go through quality control testing. Tolerances ultimately exist to allow 'breathing space' for objects to be manufactured as absolute accuracy is very difficult to achieve.

# SCALING, TOLERANCES AND LAYERING

Layering: Layering in construction and engineering drawings often refer to a drawing or CAD file being split up into specific parts. Layers are commonly used in architecture and construction drawings as a means of splitting up the vast amount of information that could be on any one CAD file. The use of layers allows user to switch information on and off as and when desired. This allows greater clarity while working on drawings and when printing drawings for specific audiences. The use of layers and layer management allows users to apply certain conventions to each layer for example line type, line weight etc. Layers also allow for multiple input to a drawing allowing easier sharing and multi user drawings.