Introduction to Detail Design & Manufacture

During 10 DD&M sessions on alternate Thursday afternoons, you will learn the skills and standards that will enable you to produce clear, unambiguous drawings, and develop an appreciation on manufacturing processes.

This initial session aims to introduce you to technical documentation (drawings) and illustrate the link with Computer Aided Design (CAD).

DD&M and CAD are taught separately so that you can acquire drawing skills here and focus more on creating models in the Friday afternoon CAD sessions.

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Technical Documentation

Design documentation is used for technical communication and comes in many forms, including:

- Free hand sketches
- Constructed drawings (using drawing instruments)
- 2D CAD drawings
- 3D CAD models

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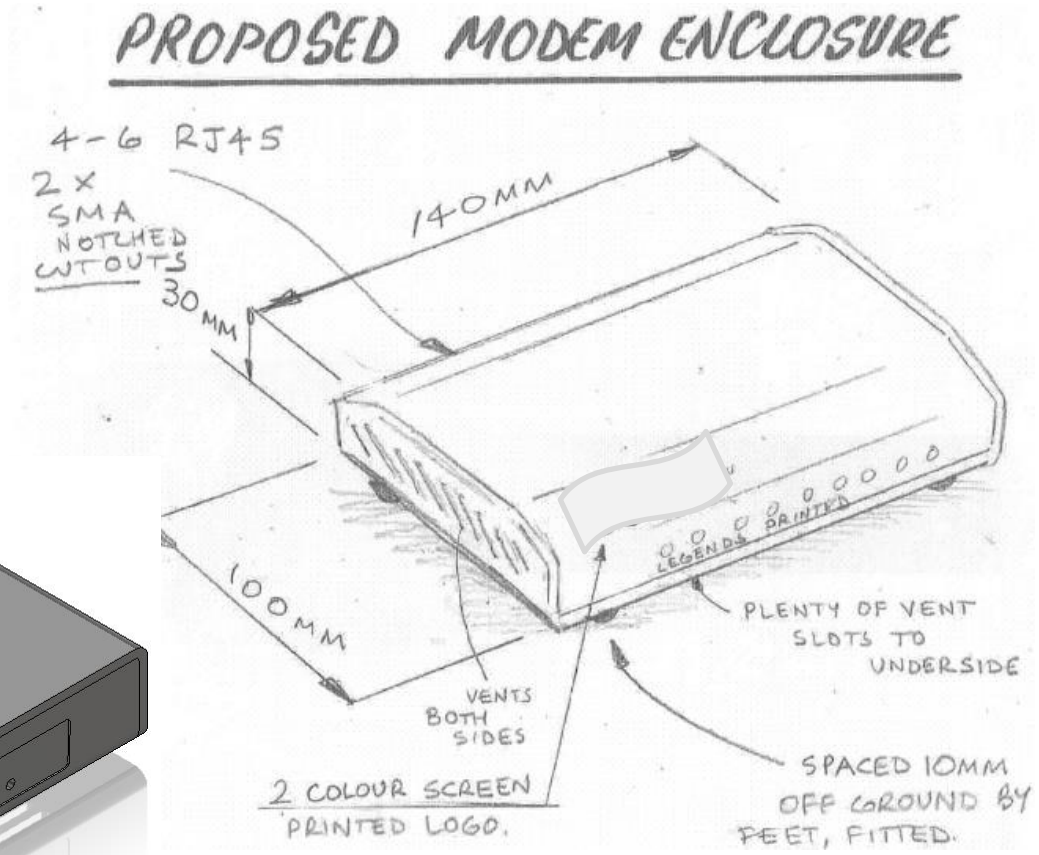
Free hand sketches

Often used to communicate conceptual design intent to Design Engineers, who will work on a more detailed specification and documentation.



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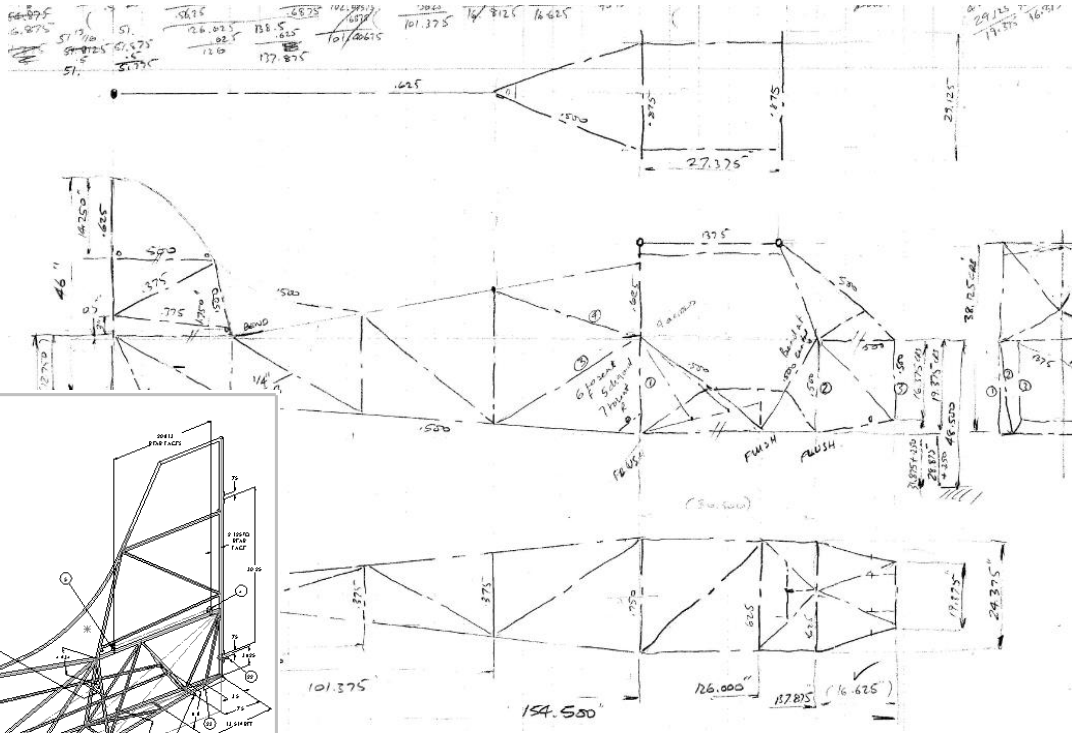
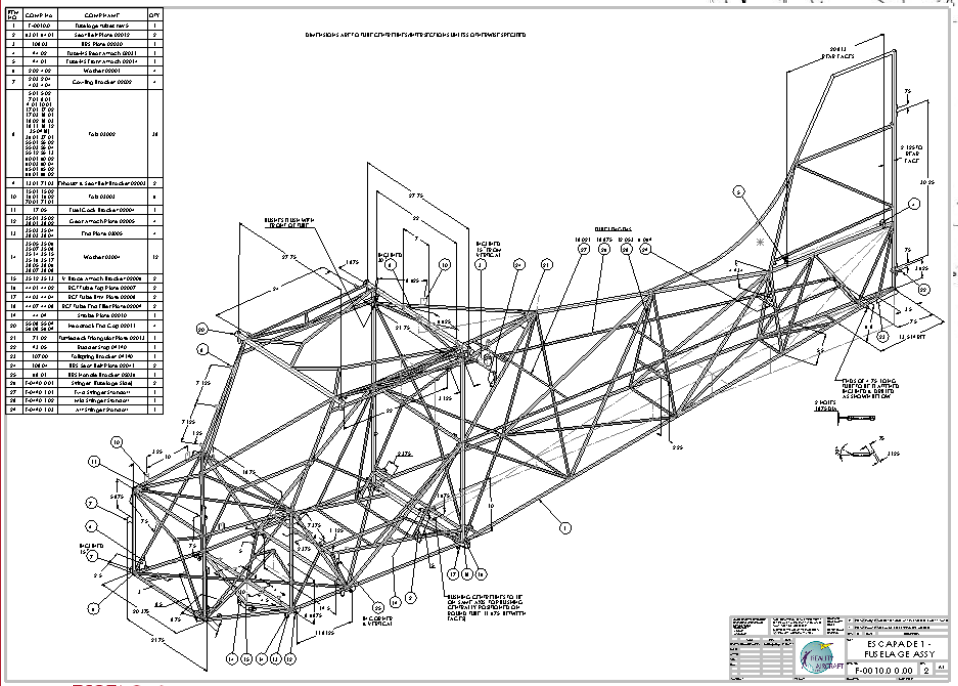
Free hand sketches

Also used on survey, to record form and measurements of existing products, prior to creating CAD drawings or models for further development





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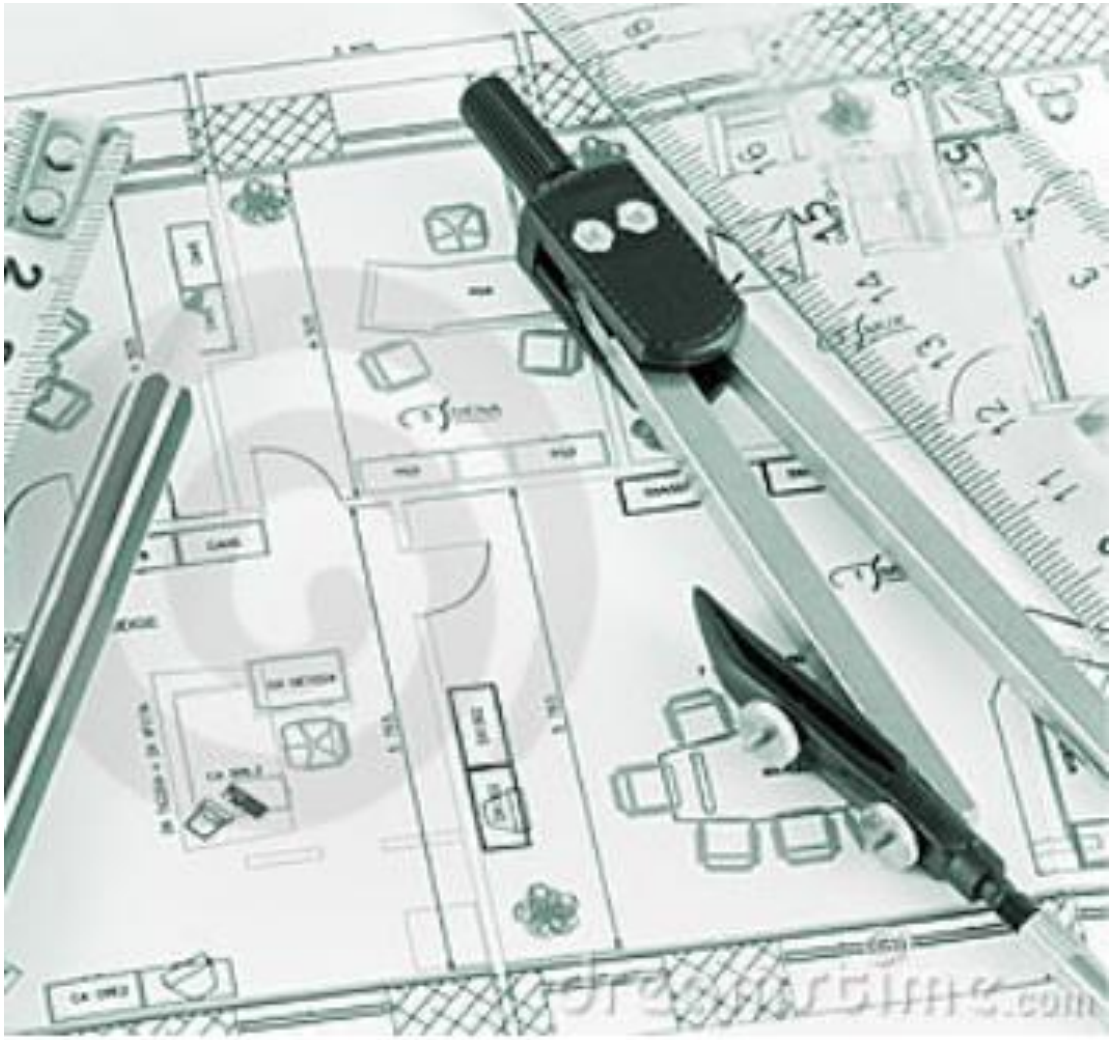
Constructed drawings

Little used these days but many legacy designs remain on paper only, having been manually created on drawing boards with drawing instruments (set squares, compasses, pencils, etc.)



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Drawing Standards - Projecting views

Drawings often need 2 or more views to display an object without ambiguity.

Two systems exist: First Angle Projection and the more commonly used Third Angle Projection. In the UK we must be aware of both. Although Third Angle Projection is now widely used, many older drawings may be in First Angle Projection. Misinterpretation and confusion can lead to expensive mistakes.

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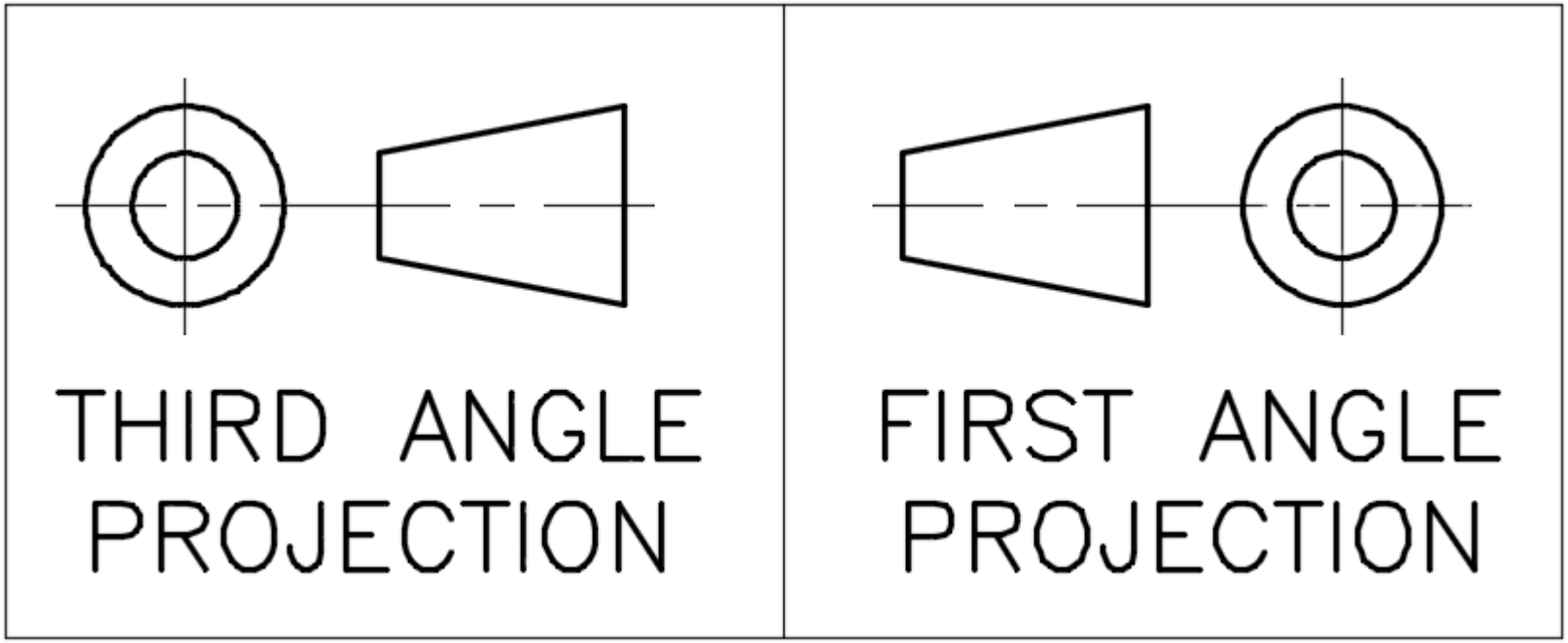
Projection systems

A drawing should state which system has been used, either in text, or by using symbols:



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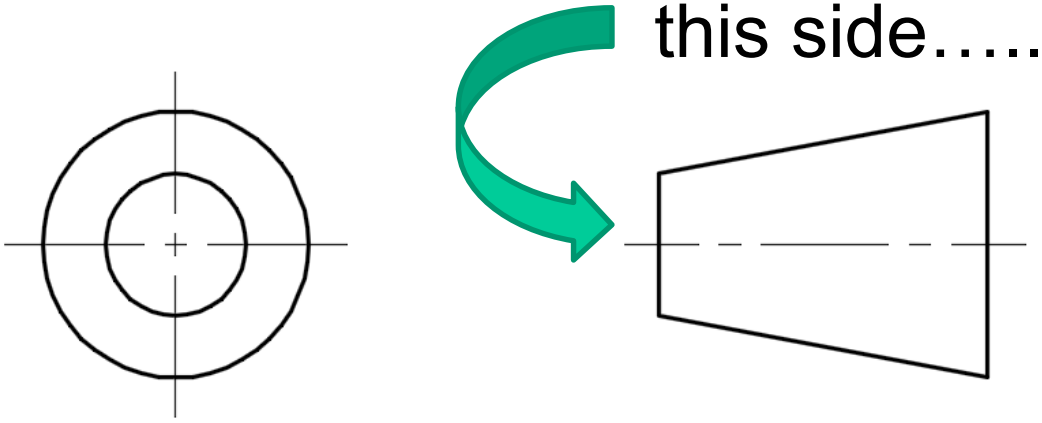
Third Angle Projection

What you see this side…..



…you draw on the SAME side

This is the most logical arrangement

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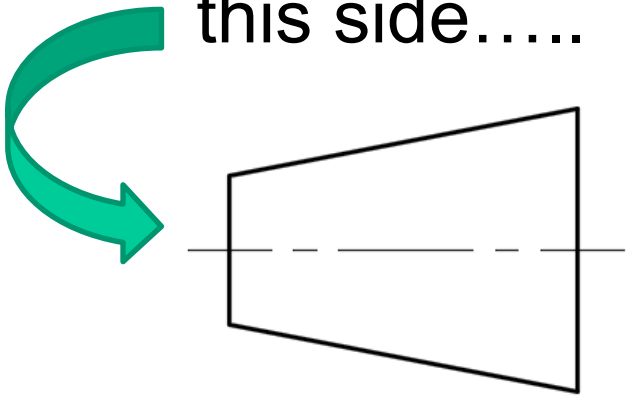
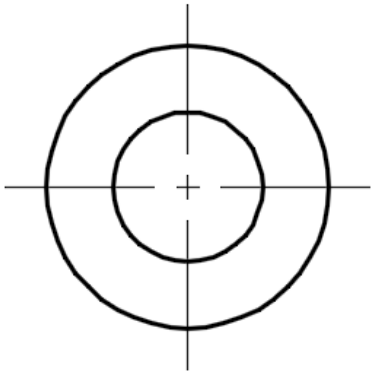
First Angle Projection

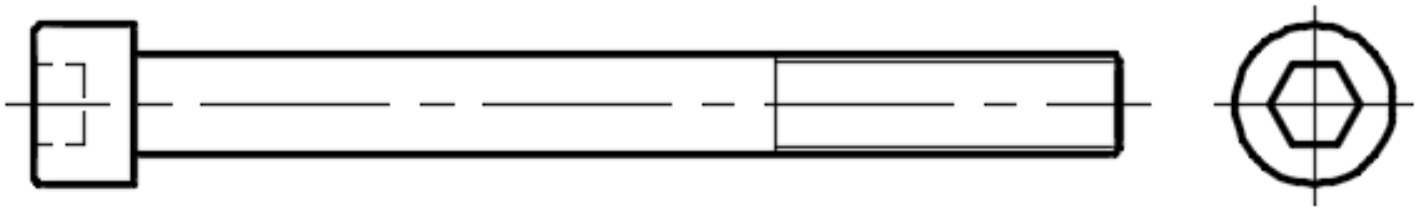
What you see this side…..



…you draw on the OTHER side



Not quite as logical, particularly with long, thin objects…



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