

Engineering Drawings

The Blank Engineering Drawing Form

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		2.007 Design & Manufacturing I		
		TITLE		
		MAT'L	SCALE	SHEET
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ANSI Standard				

This blank template can be printed off the 2.007 locker on Server. You can use this form to make your own production drawings for class. This will get you used to the look and feel of an engineering drawing.

To print this file from Server:

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server% add 2.007
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Engineering Drawing and Sketching

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Introduction

One of the best ways to communicate one's ideas is through some form of picture or drawing. This is especially true for the engineer. The purpose of this guide is to give you the basics of engineering sketching and drawing.

We will treat "sketching" and "drawing" as one. "Sketching" generally means freehand drawing. "Drawing" usually means using drawing instruments, from compasses to computers to bring precision to the drawings.

This is just an introduction. Don't worry about understanding every detail right now - just get a general feel for the language of graphics.

We hope you like the object in figure 1, because you'll be seeing a lot of it. Before we get started on any technical drawings, let's get a good look at this strange block from several angles.

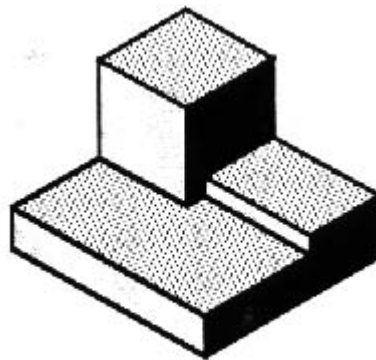


Figure 1 A machined block

Isometric Drawing

The representation of the object in figure 2 is called an isometric drawing. This is one of a family of three-dimensional views called pictorial drawings. In an isometric drawing, the object's vertical lines are drawn vertically, and the horizontal lines in the width and depth planes are shown at 30 degrees to the horizontal. When drawn under these guidelines, the lines parallel to these three axes are at their true (scale) lengths. Lines that are not parallel to these axes will not be of their true length.

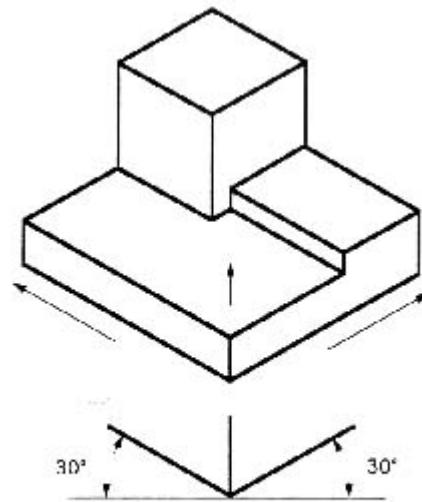


Figure 2 An isometric drawing

Any engineering drawing should show everything: a complete understanding of the object should be possible from the drawing. If the isometric drawing can show all details and all dimensions on one drawing, it is ideal.

One can pack a great deal of information into an isometric drawing. Look, for instance, at the instructions for a home woodworker in figure 3, taken from the Popular Mechanics magazine. Everything the designer needs to convey to the craftsperson is in this one isometric drawing.

However, if the object in figure 2 had a hole on the back side, it would not be visible using a single isometric drawing. In order to get a more complete view of the object, an orthographic projection may be used.

Orthographic or Multiview Drawing

Imagine that you have an object suspended by transparent threads inside a glass box, as in figure 4.

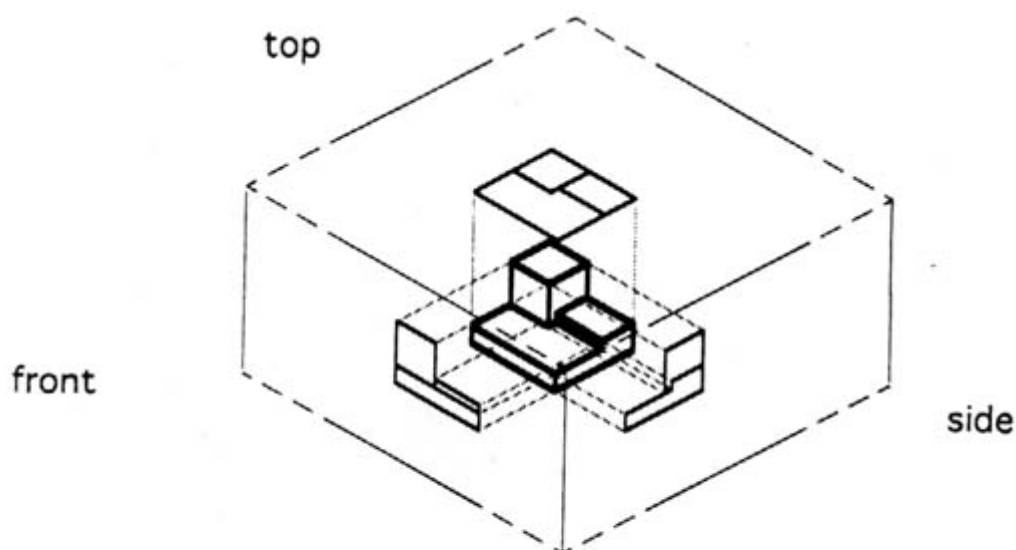


Figure 4 The block suspended in a glass box.

