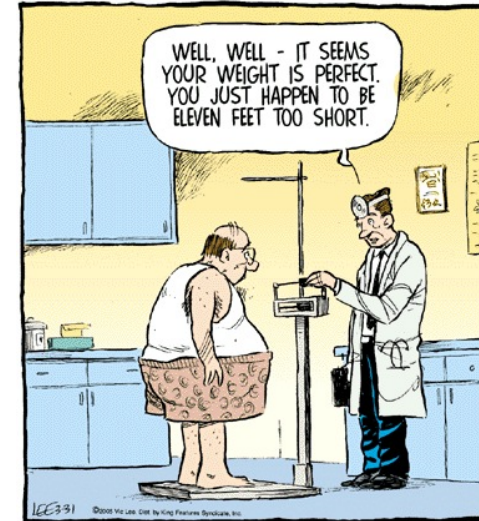


CHAPTER 17- OBLIQUE PROJECTION

Mechanical Design and Engineering

Dossin

Oblique Projection



Oblique Projection



Life's way of sending you those little subtle hints.

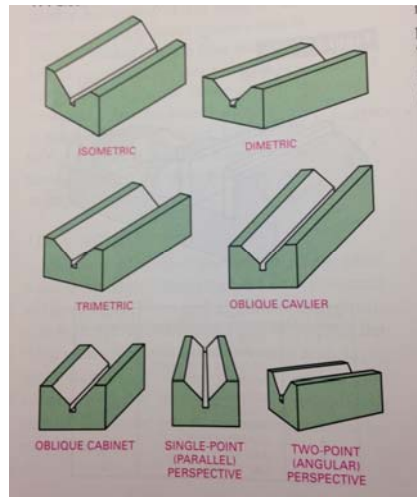
Oblique Projection

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FOOTBALL BULLIES

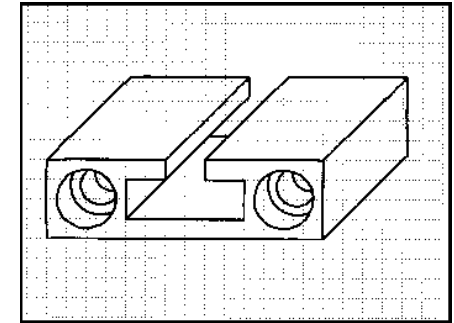
Various Types of Pictorial Drawings



Oblique Projection

After reviewing this material, students will know how to do the following:

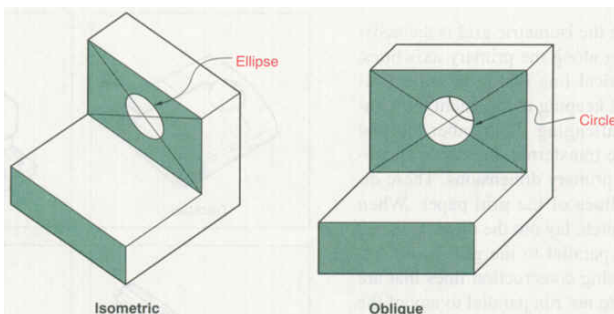
- ▣ Describe how an oblique projection is created.
- ▣ List the advantage of oblique projection.
- ▣ Draw cavalier and cabinet oblique drawings.
- ▣ Know how to place circle when creating an oblique drawing.



An example of an Oblique Projection Drawing

Definition of an Oblique Projection

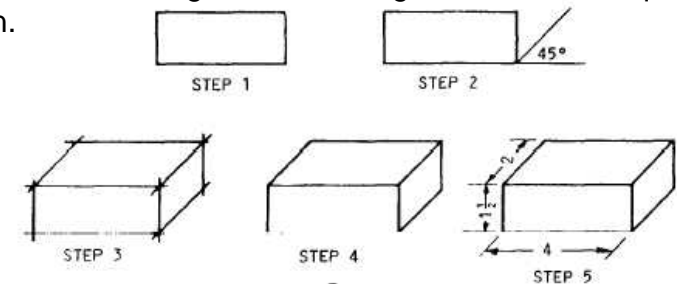
- ▣ A way of drawing which a three-dimensional object is represented by a drawing in which the face, usually parallel to the picture plane, is represented in accurate or exact proportion, and all other faces are shown at any convenient angle other than 90° typically 45° , 30° or 60° .



Isometric Drawing versus an Oblique Drawing

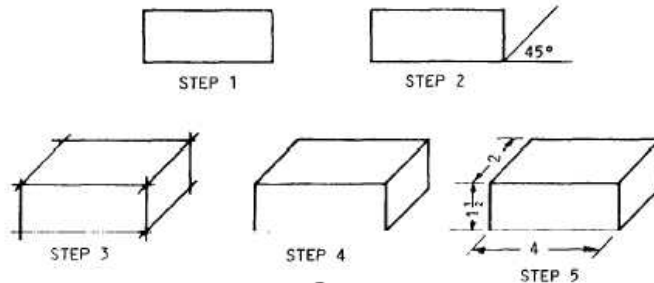
Drawing an Oblique Projection

Draw a 4" wide x 2" length x 1-1/2" height box in an Oblique Projection.



- Step 1:** Draw the front face of the box parallel with the picture plane. This will be 4" wide and 1-1/2" high.
- Step 2:** Draw the side of the box back at a 45 degree angle. (You can draw it at 30 or 60 degrees as well). Measure along this line the depth of the box which is 2".

Drawing an Oblique Projection



Step 3 and 4: Complete the remaining sides of the box and cleanup your lines.

Step 5: Your Oblique box is complete. Note the dimensions you have drawn the box at.

Cavalier and Cabinet Oblique Projections

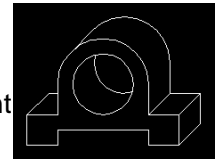
There are two types of Oblique Projection Drawings, Cavalier and Cabinet.

1. In **Cavalier Oblique Drawings**, all lines (including receding lines) are made to their true length. This means that if the object shown on the right is 4" deep, you would draw it 4" deep.



Cavalier Oblique

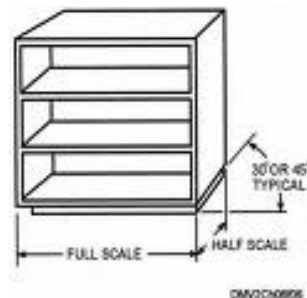
2. In **Cabinet Oblique Drawings**, receding lines are shortened by typically one-half their true length to compensate for distortion and more closely represent what the human eye would see. This means that if the object shown on the right is 4" deep, you would draw it 2" deep. Cabinet oblique drawings are the most used form of oblique drawings.



Cabinet Oblique

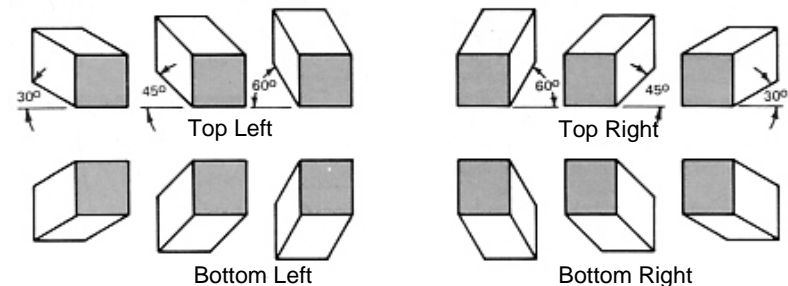
Cavalier and Cabinet Oblique Projections

Question? What type of Oblique Projection is this, Cavalier or Cabinet?



Angles of Projections in Oblique

In oblique drawings, the three axes of projection are **vertical**, **horizontal**, and **receding**. The front view (vertical & horizontal axis) is parallel to the frontal plane and the other two faces are oblique (receding). The direction of projection can be top-left, top-right, bottom-left, or bottom-right. The receding axis is typically drawn at 60, 45, or 30 degrees



Angles in Oblique Drawings

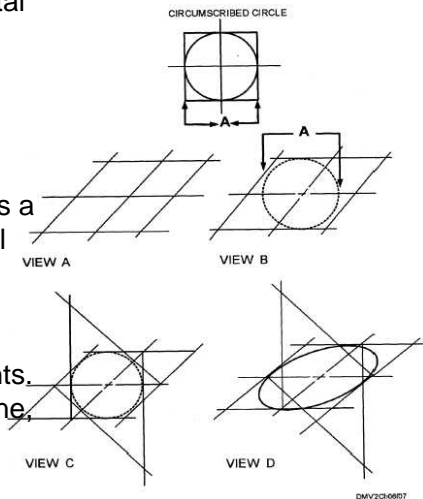
Some objects have angles to them. Copy Figure 17.19, on Page 554 of your book showing how to draw angles in oblique projection.

Circles, Arcs, and ellipses in Oblique Drawings

Step 1: Draw a vertical and horizontal centerline with the horizontal centerline receding from the plane of projection.

Step 2: Construct a circle equal in diameter to the actual circle using as a center the intersection of the vertical and horizontal centerlines.

Step 3: The constructed circle will intersect each centerline at two points. From the two points on one centerline, draw two perpendiculars to the other centerline.

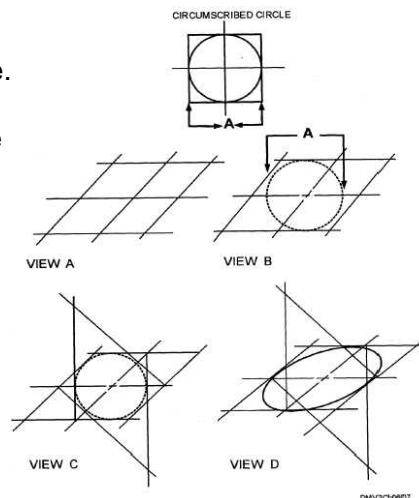


Circles, Arcs, and ellipses in Oblique Drawings

Step 4: From the two points on the other centerline, draw two perpendiculars to the first centerline.

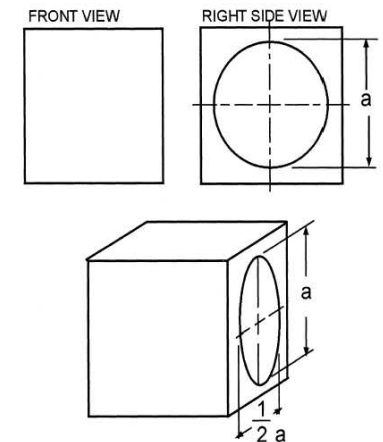
Step 5: From the intersection of the four perpendiculars, draw four circular arcs.

Step 6: Darken all outlines.



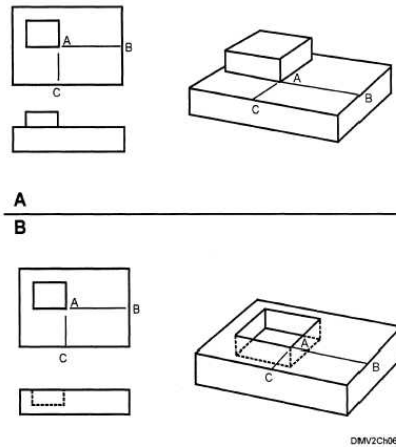
Circles, Arcs, and ellipses in Oblique Drawings

If you are drawing circles, arcs, or ellipses in an oblique cabinet projection, remember that the receding axis is reduced and you must reduce all measurements along the receding axis by the same scale.



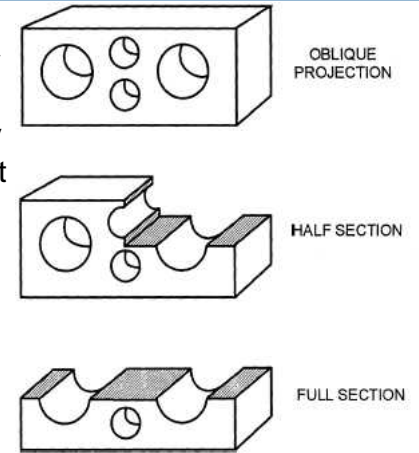
Offset Measurements

Offset measurements are measurements or locations that are parallel to certain edges on the main surface of the object and remain parallel to the same edges after projecting to another view. When an object is drawn as a cavalier projection, all offset measurements may be drawn full scale. If the object is drawn as a cabinet projection where the receding axis is drawn in reduced scale, measurements parallel to the receding axis must be drawn to the same reduced scale



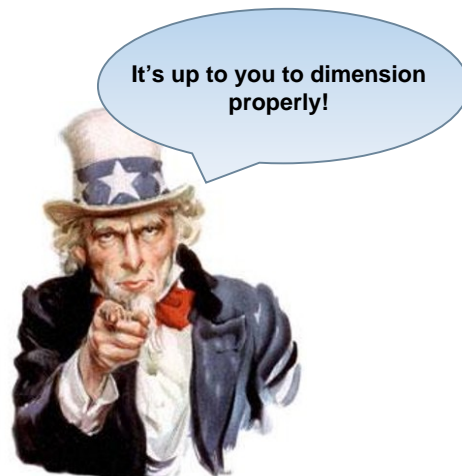
Sectioning Oblique Drawings

Sections in oblique projections are often used to show interior or hidden shapes. **Oblique half sections** where you remove only a quarter of the object is the most common section used because it shows so much more of the interior surface. **Oblique full sections** where the plane of intersection passes completely through the object are seldom used.



Dimensioning Oblique Drawings

All dimension lines, extension lines, and arrowheads must lie in the planes of the object to which they apply. It is up to you if you choose to use aligned or unidirectional dimensioning.



Credits

Information and pictures were taken from the following sources:

www.tpub.com

<http://www.ul.ie/~rynnnet/keanea/iso2.htm>

http://www.saskschools.ca/curr_content/Drafting10/Unit5/part1.htm

Technical Drawing by Giesecke, Mitchell, Spencer, Hill, Dygdon, and Novak

