

Chapter 6- Day 3

Intersections & Tangencies, Holes, Fillets, Rounds & Runouts, Conventional Edges, RH/ LH Parts, 1st & 3rd Angle Projection

Intersections and Tangencies

No line should be drawn where a curved surface is tangent to a plane surface. BUT, when a curved surface intersects a plane surface, a _____ is formed.

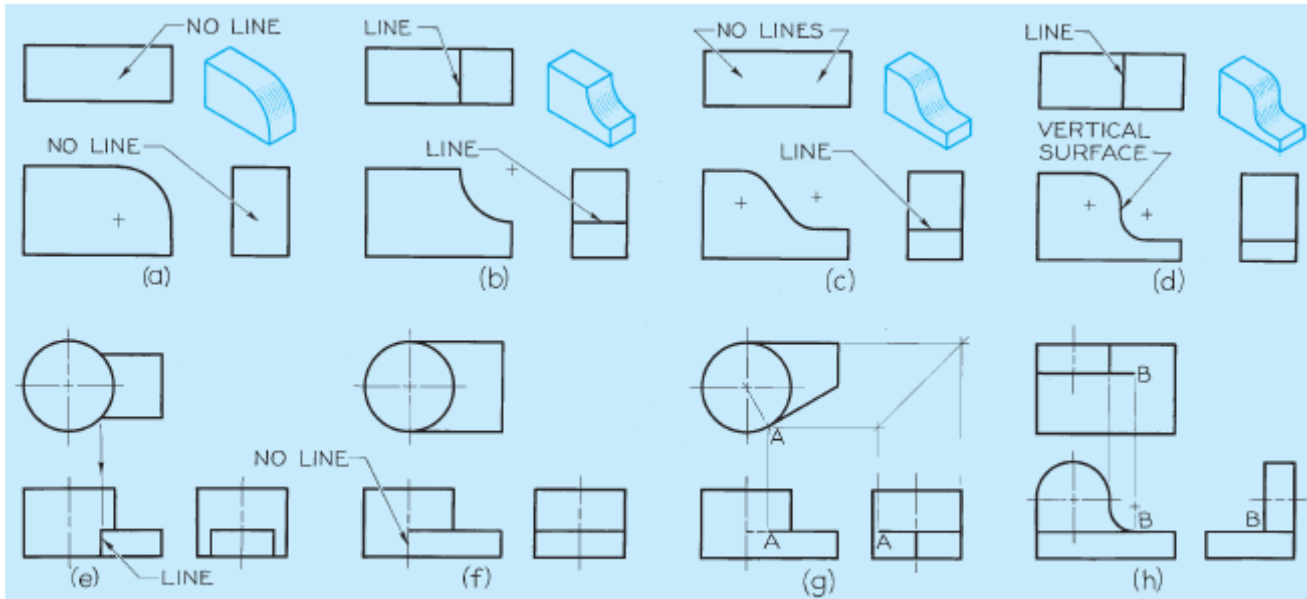


FIGURE 6.37 Intersections and Tangencies.

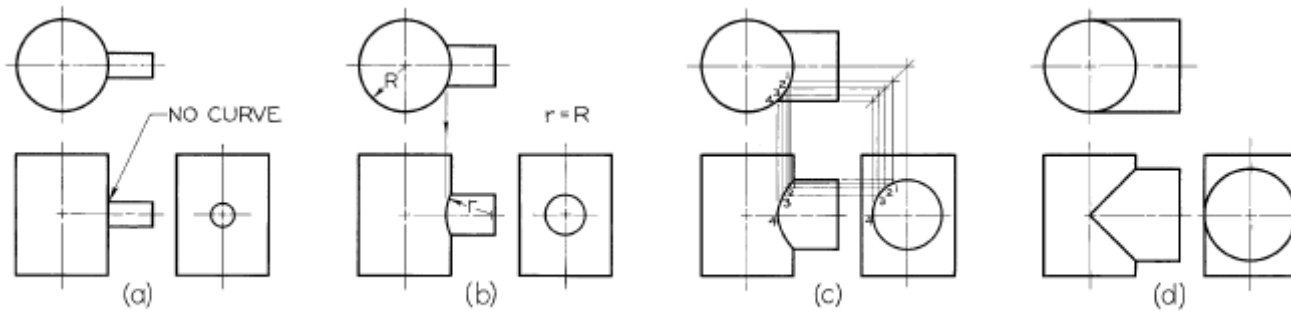


FIGURE 6.38 Intersections of Cylinders.

How to Represent Holes

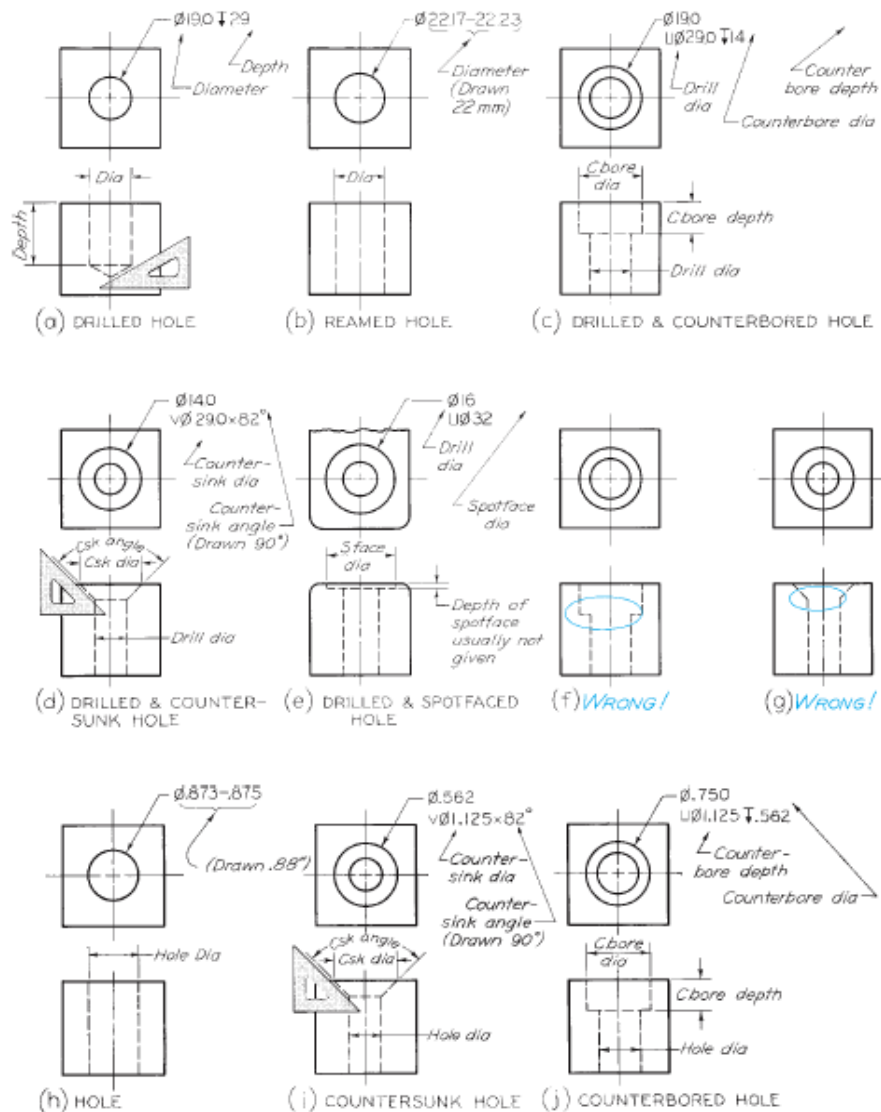


FIGURE 6.40 How to Represent Holes. Dimensions for (a)–(e) in metric.

- (A) **Drilled hole:** is a _____ if it goes through a member. If it has a specified depth it's called a _____ hole. The depth includes the cylindrical portion of the hole only. The point of the drill would be drawn with a 30/60 triangle.
- (B) **Reamed Hole, or Through-Drilled Hole:** Drilling followed by reaming generally produces hole geometry and finish that is as close to theoretical perfection as possible
- (C) **Drilled & Counterbored Hole:** A hole is drilled and then the _____ is enlarged cylindrically to a specified diameter and depth.
- (D) **Drilled & Countersunk Hole:** The hole is drilled, and then the upper part is enlarged conically to a specified _____. The angle is usually 82 degrees, but drawn at 90 degrees.
- (E) **Drilled & Spotfaced Hole:** The depth is typically not specified but left up to the shop to determine. For average cases, the depth is drawn 1.5mm or (1/16")
- (F) Incorrect way of showing hole.
- (G) Incorrect way of showing hole.
- (H-J) The size of the hole may be specified as a diameter without the specific method of drilling, this will depend on what is available in the shop.

Fillet, Rounds, & Runouts

Fillet: _____

Round: _____

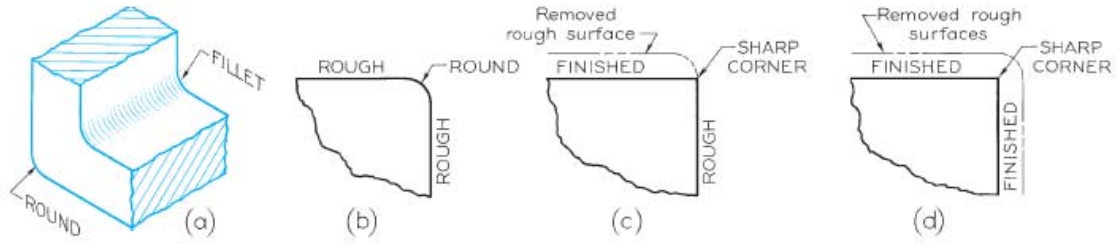


FIGURE 6.41 Rough and Finished Surfaces.

On working drawings, fillets and rounds are never _____. The presence of the curved surface is indicated only where they appear as arcs.

Runouts, are _____.

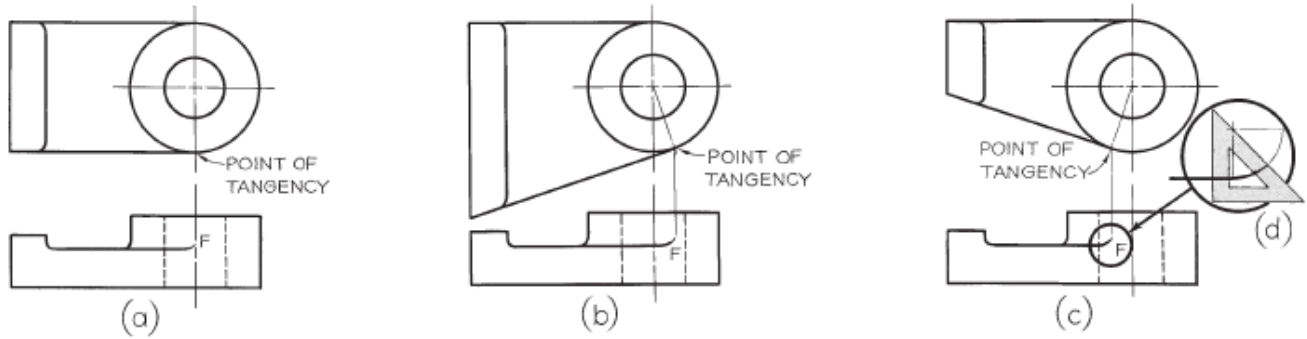
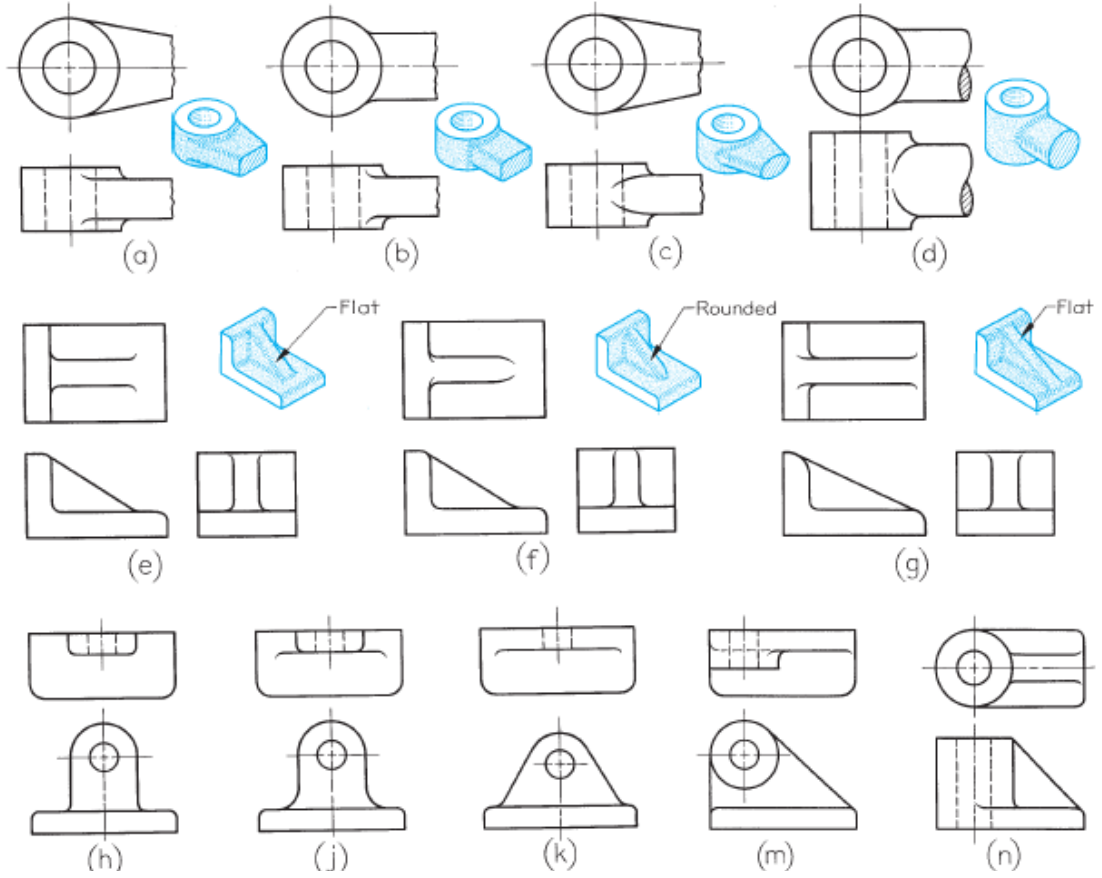


FIGURE 6.42 Runouts.

Various filleted intersections shown below.



Conventional Edges

Rounded and filleted intersections eliminate sharp edges and sometimes make it difficult to present a clear shape description. In fact, sometimes the true projection may actually be misleading.

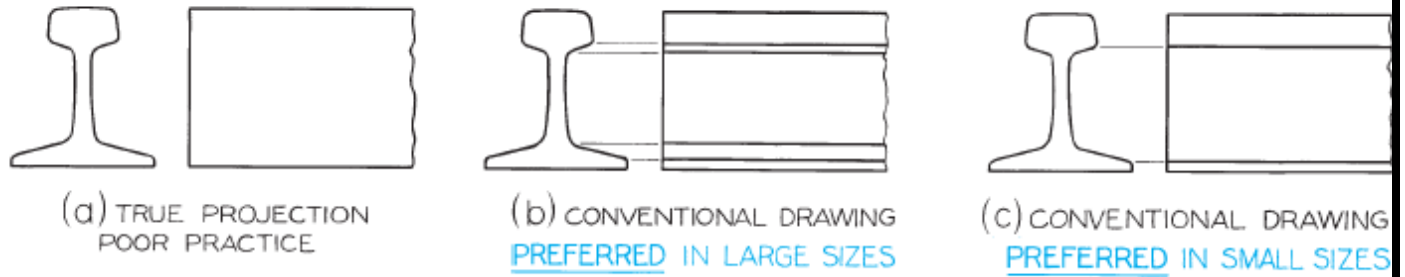


FIGURE 6.44 Conventional Representation of a Rail.

Right-Hand & Left-Hand Parts

In industry, many individual parts are located symmetrically so they can function in pairs. However, opposite parts can't be exactly alike, such as a pair of gloves or shoes. Therefore, the LH part is not just the RH part turned around, the two parts are _____.

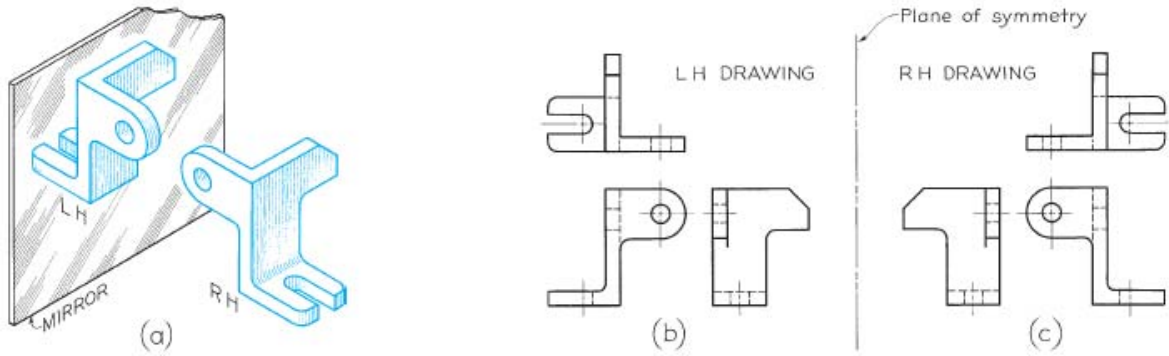


FIGURE 6.46 Right-Hand and Left-Hand Parts.

It is customary to draw only one of two opposite parts and to label the one that is drawn with a note, such as _____.

First and Third Angle Projection

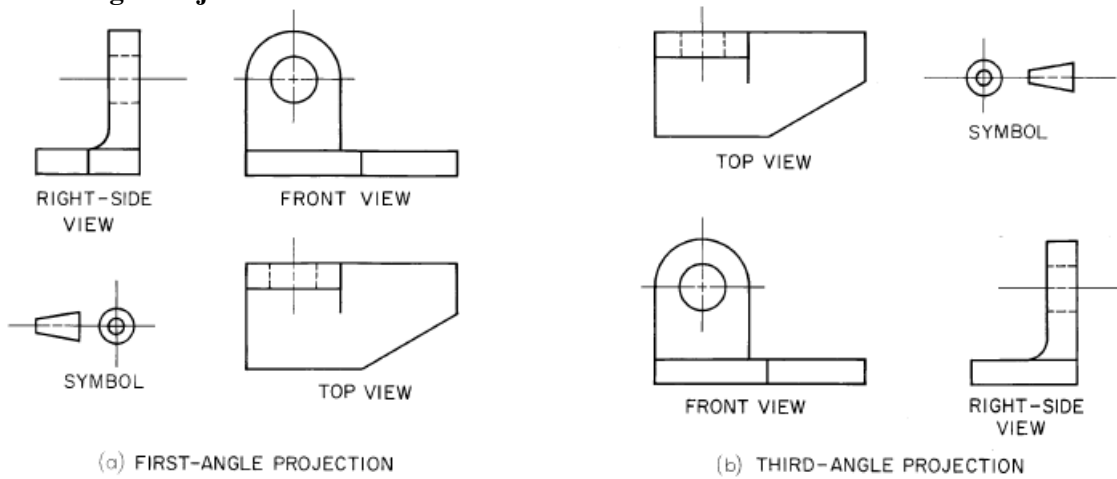


FIGURE 6.48 First-Angle Projection Compared to Third-Angle Projection.