Constructing drawings transparently

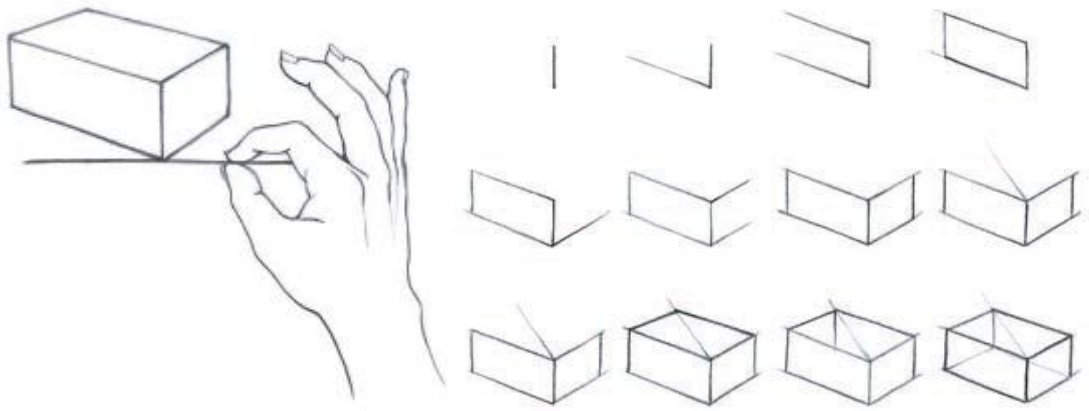
Transparent construction is an analytical method of drawing that helps you draw objects three-dimensionally and create realistic space relationships between objects. A common error in drawing is making objects appear to occupy the same space. If you draw them transparently, you can identify and correct or avoid these errors because you can see the space each object occupies.

You can use the following instructions for sighting and drawing a transparent box and cylinder. Although they may differ in degree of complexity, you can draw most geometric shapes by creating boxes, cylinders, or combinations of both, with these processes. Transparent construction also works for other kinds of objects, too. In Figure 5-7, you can see how constructing a shoe transparently makes understanding and depicting it three-dimensionally easy so that you don't continue to struggle.

Sighting and drawing a box

Use this procedure to sight and draw problem-free boxes. Follow along in Figure 5-8.

1. Draw a line that represents the leading edge of your box. This first line you draw determines how big your box becomes. Head to "Sighting and measuring with a sighting stick" earlier in this chapter for more on leading edges.
2. Begin sighting and drawing the left side of the box. Hold your sighting stick horizontally at the bottom of the leading edge of the box and estimate the angle of the bottom of the left side of the box as in Figure 5-8a. Draw a longer line than you need that represents the angle. The length isn't important at this point because you find the width of the box in a separate step.
3. Hold the sighting stick horizontally at the top of the leading edge of the box to estimate the angle of the top left front edge of the box and draw a line that represents that angle.
4. Add the left edge of the box. Hold the sighting stick vertically along the leading edge so that the end of the stick lines up with the top of the box. Position your thumbnail on the stick in line with the bottom edge of the box; that's the measurement you use to compare other distances on the box. Now, turn your sighting stick horizontally and compare this length with the distance between the leading edge and the vertical edge on the left side of the box. Ask yourself what proportion of that length the distance between the two edges is (half? Two-thirds?). Decide what portion of the distance it is and draw a vertical line to represent the left edge of the box, allowing it to cross the two diagonals you drew in Steps 2 and 3. That line completes the left side of the box.
5. Repeat Steps 2 through 4 for the right side of the box.
6. Draw the back edges of the top of the box. Hold your sighting stick horizontally at the top of the leading edge and estimate the diagonal angle from the closest front top corner to the farthest back top corner. Draw it very lightly. Hold your sighting stick in the same position and estimate the distance from the front corner to the back corner and mark it on the diagonal line. Make sure you don't set the corners too far apart from each other, because that makes the top of your box look flipped up.
7. Draw the back two edges of the top of the box by connecting the side corners with the back corner you identified in Step 6.
8. Draw the back and bottom of the box. Drop a vertical line about the same length as the leading edge from the back top corner of the box. Then draw a line from the bottom left corner to the bottom of the back vertical, staying parallel to the back top left edge. Finally, draw a line from the bottom right corner to the back vertical, staying parallel to the back top right edge. Figure 5-8b shows you the whole sequence.



door on a house, for example — simply draw an X by running diagonal lines from one corner to another and then run a vertical through it as you see in
Figure 5-9. If you run the line higher, you can use it to find the peak of a roof.

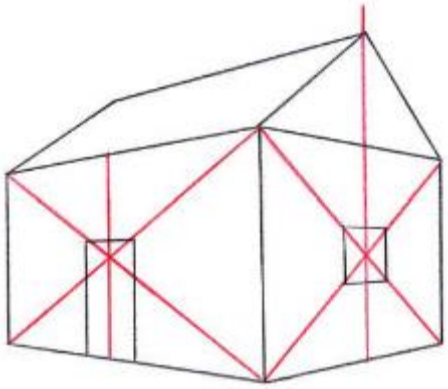


Figure 5-9:
Use an X to place centrally located windows and doors and establish the peak of a roof.

Sighting and drawing a cylindrical object

The following steps (and Figure 5-10) show you how to sight and draw a cylindrical object:

1. Draw the silhouette of the object as if it were a flat shape. Draw lightly until you know the shape is correct. For example, a tin can would be a simple rectangle.
2. Draw a middle line vertically down the center of the object so that the right and left sides are equal.
3. Draw a horizontal line at every point that the sides of the object change direction. These horizontal lines act as the major axes for the ellipses you draw in Step 4. For example, the shape of the wine bottle in our example changes direction at the neck, so we draw a horizontal line at that point and another horizontal line where the line transitions to the main body of the bottle.
4. On each of these lines, draw an ellipse. If you're looking down on the object, make sure that the ellipses at the top of the object are narrower than the ellipses at the bottom. You can sight them by holding your sighting stick at the point of the major axis and mentally measuring how much below that line the ellipse hits. Make sure you draw a true ellipse, not a football, almond, or racetrack shape. Getting the shape right can help you avoid making flat-bottomed cylinders, which is one of the rookie mistakes you can see how to avoid in Chapter 12. You can also draw a cylinder by using a box shape, as you see in Figure 5-11. Not all cylinders are conveniently standing upright for you, and this method is particularly helpful if the cylinder is lying on its side. You must make certain that the rectangles for the front and back of the box appear to be foreshortened (shorter than they actually are) squares for this technique to work. You may need to tinker with the widths of the rectangles to get the proportions right.

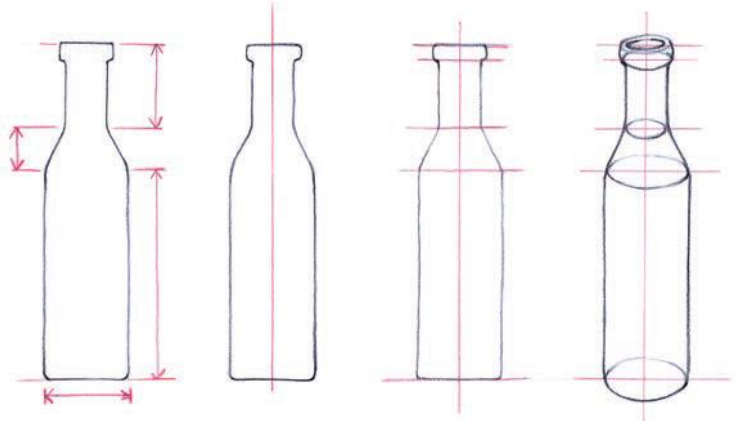


Figure 5-10:
The process for sighting and measuring a cylinder.

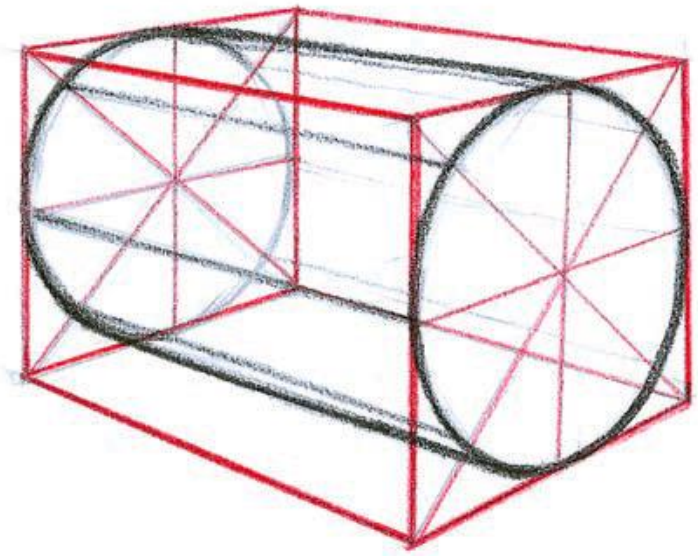


Figure 5-11:
Using a box to draw a cylinder on its side.