Chapter 2

Interpreting the Drawings

The drawings in this book have been prepared the same way drawings are prepared in the furniture industry. In the industry, before any wood is cut, the builder takes time to thoroughly review the drawing to be certain that his or her interpretation agrees with what is shown, and that individual techniques, preferences, and methods will produce the piece shown. Then the maker prepares a list of parts, taking into account the available materials, joinery details, and any changes that may be necessary due to these variables.

The cut lists presented in this book are what I would use in my workshop. You may work differently from me, so you should check my cut lists with care, or better yet, devise your own lists from the information given in the drawings. If you are not certain what size to make a given part, please take the time to figure it out before you cut any wood. Building a nice piece of furniture takes some time, and any time spent at the beginning of the project to understand what is to be built and how it will be built will be rewarded in the end.

The drawings include a plan view (straight down from above), elevations (looking straight at the piece from the front or side), sections (looking straight at an imaginary slice taken through the piece), and details (either three-dimensional views, or close-up two-dimensional views). Technical drawing gives a highly accurate, although somewhat unrealistic view of the three-dimensional world. Because our eyes are used to looking at three-dimensional objects, a technical drawing can be confusing, because it does not show perspective. In plans and elevations, the point of view is from a true 90° angle to the object and what is seen are the outlines of what is closest to the observer.

Imagine a large pane of glass placed in front of a piece of furniture, upon which the image is somehow projected. Objects parallel to this piece of glass appear in the drawing at their true length. A line that is perpendicular to the glass would appear as a single point, and a line at any other angle, or a curve, would appear to be shortened or otherwise distorted. The three-dimensional views in this book are also prepared as mechanical representations, with parallel lines remaining parallel rather than converging as they would in real life. Because there is no foreshortening, these sometimes appear to be distorted.

Section views show the details on the inside. Imagine a hamburger, a stack (from the bottom up) of bottom bun, lettuce, tomato, meat, cheese, onion, pickle, mustard, ketchup, and top bun. If you look at the sandwich directly from above, all you will see is the top bun. You know that it is round, and you can measure its diameter, but you can't tell how thick it is, or what is underneath. If you look at it directly from the front or side, you will see the edges of the bun, the meat, and perhaps a little bit of cheese or lettuce sticking out. You can measure the height and the width, but you still don't learn what is inside and you can't see that the bun is round—the edges could represent a rectangular slice of bread rather than a round bun.

The two drawings together give you a good idea of the shape and size, but you still can't tell what is inside. Is there a big slice of onion, or is it chopped in tiny pieces? Did they forget the pickle, or is it above or below the meat? If you slice the burger and then look at the edge, you will get a good look at what is inside. This is the principle behind a section view, and all of the views together help you to know how the hamburger is built. If you are having trouble visualizing what a piece of furniture is like, try looking at all the views. Something that doesn't make sense in one view usually will be shown clearly in another.

Some conventions and terms will help you interpret the drawings. Dashed lines usually represent something that is behind, or hidden by, what is in the drawing. If we are looking at the leg of a dresser where a crossrail joins it, and we see some dashed lines going into the leg from the rail, then we know that part of the rail is tenoned into a mortise in the leg. If a solid line continues out the other side of the leg, then we know that the mortise goes completely through the leg and what we are seeing is the end of the tenon on the rail.

In section views, our imaginary pane of glass goes through the middle of the object *cutting* the parts it intersects and giving a clear view of the parts beyond. In section views, some areas will be filled in (hatched). This means the filled

part lies on the plane of the imaginary glass. In these drawings, arcs or splines (squiggly lines) represent solid wood, and patterns that are more regular represent plywood, although it remains the maker's option as to what material to use. Glass is represented by its own pattern. In a section view, a dashed line represents something that is in front of the cutting plane. Many of the plan views in this book are sections, or views with the top removed, with the outline of the top indicated by a dashed line.

Extension lines and dimension lines, both of which are noticeably thinner than the lines of the actual parts of the furniture, indicate dimensions. Extension lines approach, but do not quite touch, the point on the drawing that the dimensions refer to. Dimension lines have arrowheads that either point to the extension line, or in some cases point directly to an object. Dimension lines are kept off to the edges of the drawing so that they don't interfere with the actual drawing, with extension lines connecting them to the object. Occasionally, there may be confusion about where an extension line is actually pointing, but if you lay a straight edge on the extension line you will be able to see where it leads.

One of the challenges of doing drawings in this small format is to provide enough dimensions to build a piece without covering most of the page with dimension lines, arrows, and numbers. Generally, a dimension for a part is given in only one view of a drawing, hopefully in the view where it makes the most sense. The width and depth of a desktop, for example, will be located in the plan view, and the thickness of the top will be in a section view or an elevation. If it seems that a needed dimension is missing, try looking for the same object in a different view.

There will be times when it's necessary to do a little math. If there are a number of parts making up an overall dimension and the overall dimension is given, not all of the dimensions for the parts will be given. Take, for example, a plan view of a dresser. There is an overall width of the top, the width from the outside of one leg to the outside of the other leg, the width of the legs, and the widths of all the parts in between. If the parts are symmetrical, only one will be dimensioned. If you know the overall width of a paneled back, the width of one outer stile, and the width of the center stile, you can reasonably assume that both outer stiles will be the same width, and you can calculate the width of the panels in between. This is done both to keep the drawing from becoming cluttered and to ensure that the maker understands the drawing. It also ensures that if there is an error in the drawing or dimensions, the maker will be able to catch it and compensate for it. If the dimensions don't seem to add up, study the drawing and carefully add and subtract the sizes of the parts. Check and double-check before you go cutting up your material.

The dimensions in the drawings don't necessarily reflect the total sizes of the parts. Dimensions are shown from finished surface to finished surface. Where there are openings for doors and drawers, for example, the dimensions shown are for the size of the opening. On frame-and-panel parts, the dimensions shown are for the exposed areas. The maker needs to decide how deep to make the grooves for the panels and tongues, how much of a gap to leave around doors and drawers, how much to add for tenons. This depends on many factors: personal preference, species of wood, time of year, or type of climate. You may not have access to a planer, so you decide to use the wood you have that is 25/32" thick instead of ¾". There is nothing wrong with that, but if you have six rails in between seven drawers and each rail is 1/32" oversize, you will have to compensate for the extra 3/16" somewhere. You may not like dealing with thirty-seconds so you decide to fudge things a little. Again, there is nothing inherently wrong in doing this, but you need to consider it before cutting anything.

The pieces of furniture in this book are very adaptable, and examples of originals show variations not only in sizes but also in the material used for various parts. Some production runs were made using solid, V-grooved and splined, or ship-lapped backs, while in other years the same pieces were manufactured with plywood or paneled backs. Some items were shown in catalogs with paneled sides, yet the only known examples have solid or plywood sides. You may be a purist, and nothing but a hand-cut dovetailed drawer in solid maple will be acceptable. Or, you may prefer biscuit-joined plywood drawers. This book gives you a place to start, and the information you need to make your own decisions.

Preparing a cut list, deciding how to join one piece of wood to another, what order in which to assemble, and considering the consequences of all of these decisions are part of learning how to organize a bunch of pieces of wood into an attractive piece of furniture. Understanding and interpreting what is shown in a drawing, and translating that into a finished piece of furniture,

is a major part of learning the entire process of building furniture.

The way that you measure, mill stock, and make joints will all affect the size of the parts needed to build this furniture. For details that cannot be seen in the original pieces, such as unexposed mortises or grooves in panels, I have used my own judgment based on my experience. You might not agree with my decisions, and for this reason many of the smallest dimensions in this book are not given, leaving the reader to decide whether panels should be set in a ⅜"-deep groove or a ½"-deep groove. All of the information needed to generate your own cut list is in the drawing, but each maker must be responsible for determining the finished size of all of the parts.