



Woodsmith[®] PLANS

BUYING & SELECTING LUMBER



TIPS FOR BUYING LUMBER

Learn the tips and tricks for buying hardwood to ensure that you'll get the best lumber possible for all of your projects.

To build great-looking projects, you need good wood. That seems simple enough. So when I was a beginning woodworker, I would purchase premium-priced boards from the lumberyard. But my projects would never look like the ones in the magazine, even though I'd built them carefully.

Eventually, I realized the difference was in the wood. That meant good-quality lumber alone wasn't enough. To get great results, I needed to find the absolute best boards for the specific project at hand.

Here, we'll help you understand how to evaluate boards based on their type, grain, color, and defects. Be prepared to spend some time sorting through stacks of lumber to do this.

And be aware that lumber is an inconsistent material. As a result,



you'll need to buy about 25 percent extra to allow for defects, waste, and the occasional "oops."

Of course, buying extra lumber

adds cost, and good wood can be expensive. But we have some great tips on page 4 that will help you save money when you buy boards.



◀ **Softwood Lumber.**

Softwood boards are usually milled to standard sizes (such as 2x4 or 1x6), so all boards of the same species and size are priced equally.

◀ **Hardwood Lumber.**

Hardwood boards are milled in random widths and lengths, so boards of the same species often have different prices.

Softwoods & Hardwoods — Know the Differences

The first thing you need to understand about wood is that there are two distinct types: softwood and hardwood. Surprisingly, this distinction doesn't mean that all softwoods are soft and hardwoods hard.

For woodworkers, the most important difference between softwoods and hardwoods lies in how each type is milled and sold.

Most of the time, softwoods are cut into boards with standard sizes and sold as "dimensional" lumber (left photos). This produces waste as the boards are trimmed to size. But softwoods grow relatively quickly and yield an abundant supply of wood.

Hardwood trees take longer to reach harvestable size. Because of

this, hardwood logs are milled to produce the maximum number of boards with minimal waste. That explains why hardwoods are sold in random widths and lengths (photo at left).

As for thickness, softwoods are standardized and expressed in inches. Hardwoods are milled to standard thicknesses, but even this measurement is expressed differently.

Hardwood measurements are expressed in quarters of an inch, or just "quarters." So, a 1"-thick board is said to be "four quarters," shown as "4/4." A 1½" board is "6/4," and so on. This measurement refers to the rough-milled thickness. When planed smooth, as most boards are, the board is 1/8" to 3/16" thinner.

Appearance Depends on How You Slice It

When a log gets milled into boards, the blade cuts through the growth rings (drawing, below right). The angle at which these rings are cut determines the appearance of the grain on the face of the board (photos at right).

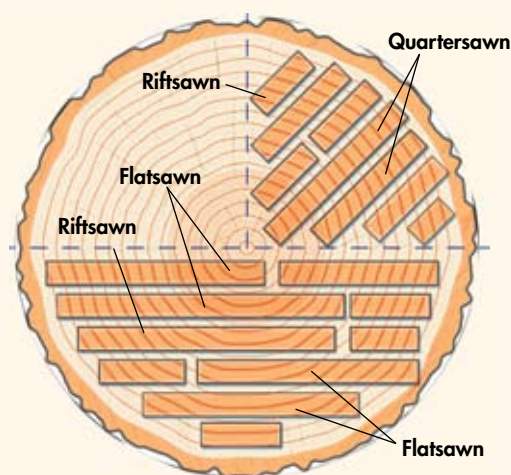
The top board was “flatsawn” one slice after another. Look closely at this board’s end grain, and you’ll see the growth rings run almost parallel to the face of the board. On the face, you see the telltale wavy grain that results.

The middle board was “quartersawn,” meaning the log first gets cut into quarters and then sliced so that the end grain runs perpendicular to the board’s face. This results in straight face grain. In some woods, such as oak, quartersawing produces “ray fleck” figure.

Quartersawn wood is almost always sold separately from flatsawn and priced higher. But some

flatsawn boards will have quartered grain, depending on where in the log the board came from.

The bottom board is “riftsawn.” Here, the end grain runs not parallel or perpendicular to the face, but between. The face grain is still straight but lacks the flecks.



FLATSAWN

QUARTERSAWN

RIFTSAWN



HOW TO MEASURE HARDWOODS

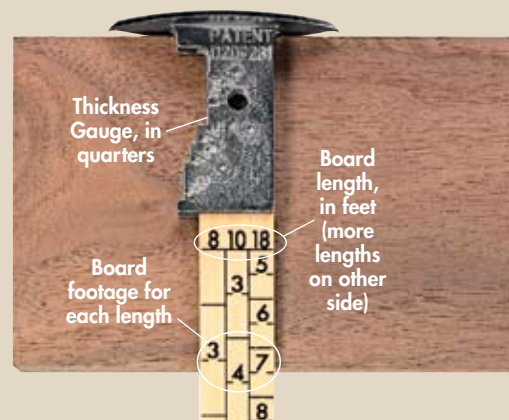
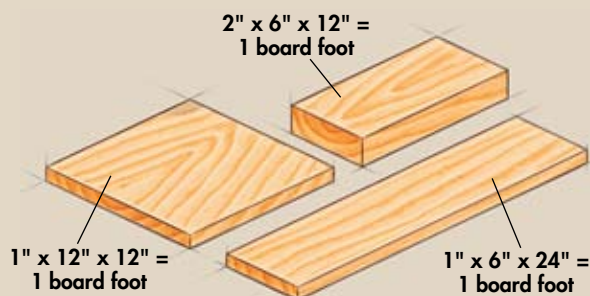
When you purchase dimensional lumber, every board is the same size and, accordingly, priced the same. But hardwoods can’t be priced “by the board” because they’re sawn to random widths and lengths. That’s why hardwoods have their own measurement system, called a board foot (bf).

One board foot is equal to a board 1" thick, 12" wide, and 12" long. But boards of different dimensions can also measure one board foot, as the illustrations at right show. Since hardwoods are priced per board foot, you need to understand board footage.

To calculate the board footage of any board, multiply its thickness, width, and length (all in inches), and then divide by 144. For example, a board 1" thick, 6" wide, and 96" long measures 4 bf ($1 \times 6 \times 96 = 576 \div 144 = 4$). If that board were 2" thick, it would be 8 bf ($2 \times 6 \times 96 = 1152 \div 144 = 8$).

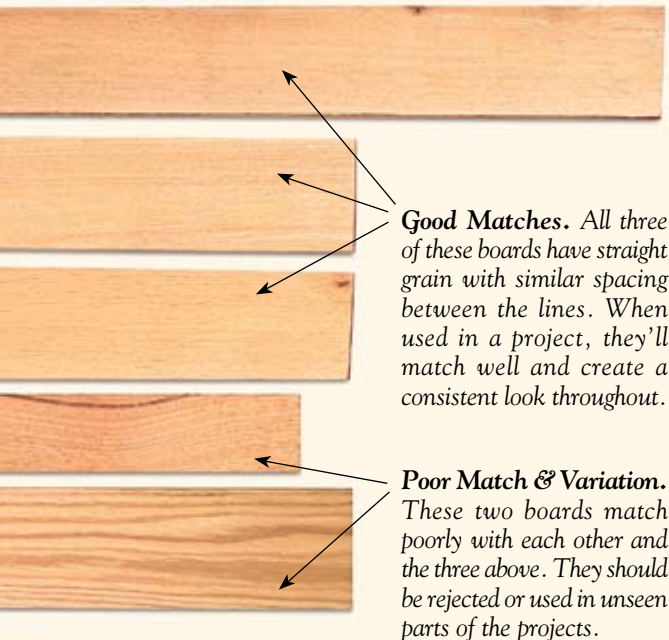
To save you from having to measure every board, lumber dealers will have a lumber scale, shown at right. It’s like a “cheat sheet” for measuring board feet. Just lay it across the board, and it shows you the board footage.

A lumber scale shows the board footage of 4/4 stock. Read the number that’s closest to the edge under the “length” number. If the board is 8-feet long, it measures 3 bf. Multiply by the thickness if the board is thicker.



$$\text{Board Footage} = \frac{T \times W \times L}{144}$$

TIPS FOR LUMBER SELECTION



Good Matches. All three of these boards have straight grain with similar spacing between the lines. When used in a project, they'll match well and create a consistent look throughout.

Poor Match & Variation. These two boards match poorly with each other and the three above. They should be rejected or used in unseen parts of the projects.

Watch Your Figure

When selecting boards, grain figure is the first thing you should examine. That's because it will have the single biggest influence on the appearance of the project.

Because of this, make sure to have a good idea of what kind of figure you want before you shop. There's no right or wrong when it comes to figure. Whether you prefer the wood to be subtle or highly figured is up to you. Just remember that with subtle figure, you are more likely to notice the project itself. With highly figured wood, you'll likely notice the wood more than the project.

Once you know what you want, start by pulling out and setting aside those boards that have the right type of figure. When I shop, I'll often start

by pulling twice as many boards as I really need. Boards that don't have the right kind of figure get neatly restacked on the pile.

Once you have a batch of good boards, line them up side by side. Keep the best grain matches, and return the rejects to the stack.

At the same time, you need to think about what project parts may be cut from each board. You'll want the most visible parts of the project to come from the best boards.

This grain-matching process will probably cull some boards from your batch of contenders. Ideally, you'll still have about 50 percent more wood at this point in the process than your project calls for. If so, you're ready to move on.

Keep an Eye on Color

Now you can start to match color. Again, your goal is consistency.

Don't be too quick to decide one board is "just the color you want." I've been frustrated before by doing this and then being unable to find more boards that match. You'll have better luck if you look instead for the color that most of your contenders have in common. You can always tweak the color with a stain or finish to get the exact color you desire.

Even in the best batch of boards, you're bound to find some color inconsistency. That's because trees absorb different minerals depending

on where they grow. And chances are slim that you'll find a batch of boards together in the stack that were cut from a single tree.

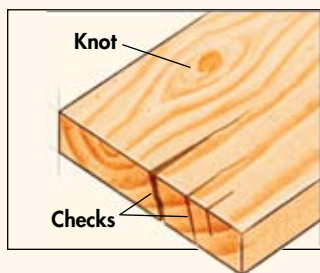
So, just as you did when matching grain, keep your project parts in mind so that you can reserve the best color for the most visible parts. Again, restack the rejects as you sort through your contenders.

When matching color, just like when matching grain, you're likely to have to make some compromises. But if you've selected boards carefully, you should have options. If the color and/or grain figure are mismatched on some boards, use those for internal parts, or at least the parts that are the least visible.

After color matching, you want to be left with about 25 percent more wood than you need to complete your project. You can quickly check your quantity using the lumber scale, as shown on page 2.

Color Change. All woods can vary in color. But some, such as this cherry, are particularly prone to variation. Reject boards that differ widely whenever possible. But if you just can't find enough matching boards, use the off-color ones for parts that won't be seen.

Consistent Color. Color matching is important for project consistency. Subtle differences probably won't be noticeable, but big ones may become visible over time, even if you stain the project.



Don't Get Done in by Defects

Hardwood boards are graded by how much can be cut into "clear" pieces free of knots, splits, and voids, as shown in the illustration at left.

Most hardwood retailers sell the highest-grade boards, called "Firsts and Seconds" (FAS), or "Selects," the second highest. FAS boards have to be at least 8' long and 6" wide. Selects can be shorter. In either grade, at least 80 percent of the best face of the board will yield clear cuttings (though not full-width). You may also find No. 1 Common, the next grade. These are 66 percent clear.

WORK AROUND DEFECTS. Splits at the end of a board are called checks. Just crosscut these sections off, or rip around them. You can cut around knots. If they're small and tightly attached, use knotted sections to make parts that won't be seen.

CHECK FOR FLATNESS. The grades will help you get defect-free lumber, but they give no indication as to whether or not that lumber is flat. The illustrations at left prove that

even high-grade lumber can still have problems. Avoid these warped boards if possible. But if you can't, here's how to salvage them:

CUP. A board that is U-shaped from edge to edge is cupped. Often, these boards can be ripped into narrower, flat boards.

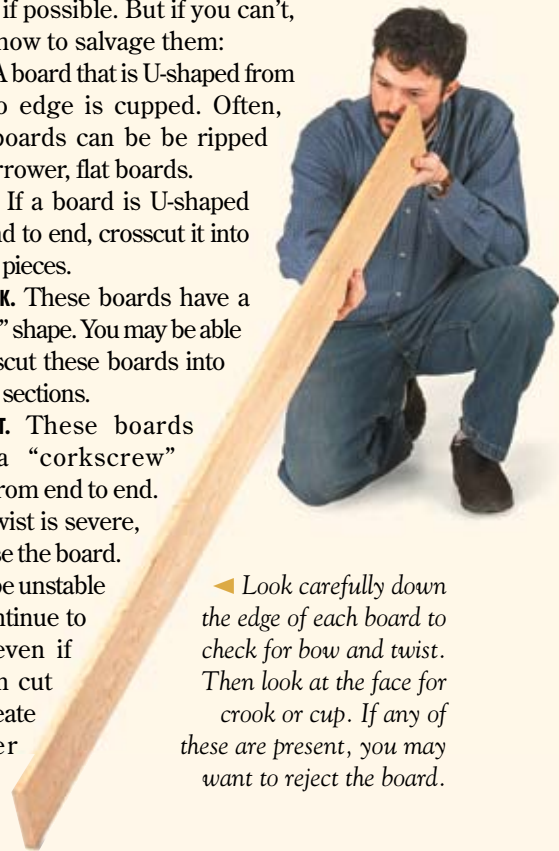
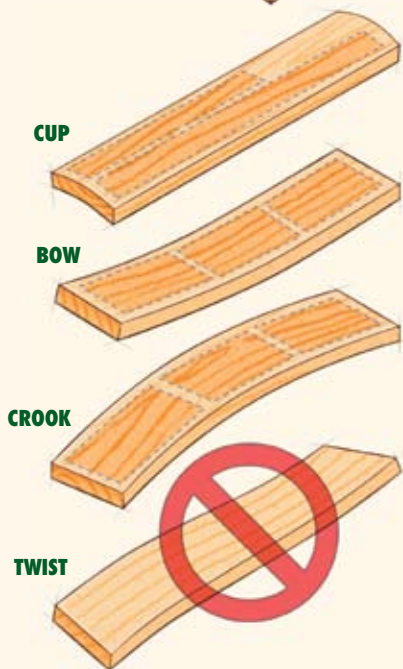
BOW. If a board is U-shaped from end to end, crosscut it into shorter pieces.

CROOK. These boards have a "dogleg" shape. You may be able to crosscut these boards into shorter sections.

TWIST. These boards have a "corkscrew" shape from end to end. If the twist is severe, don't use the board.

It may be unstable and continue to twist, even if you can cut it to create smaller pieces.

◀ Look carefully down the edge of each board to check for bow and twist. Then look at the face for crook or cup. If any of these are present, you may want to reject the board.



SIMPLE TIPS FOR SAVING MONEY ON WOOD

Good lumber doesn't come cheap. But here are a few ways to make your lumber dollar go further:

GO SHORT. Dealers sometimes have to cut long boards down. Remnants of these boards measuring 4' to 5' long will get sold as "shorts" at a lower price.

GO BIG. Handling costs drive up lumber prices, so dealers love to sell in volume. Most offer discounts if you buy a minimum number of board feet. Discounts can start at 25 board feet and are common at 100 and 250 board feet. Many times, you can mix species and still get a break.

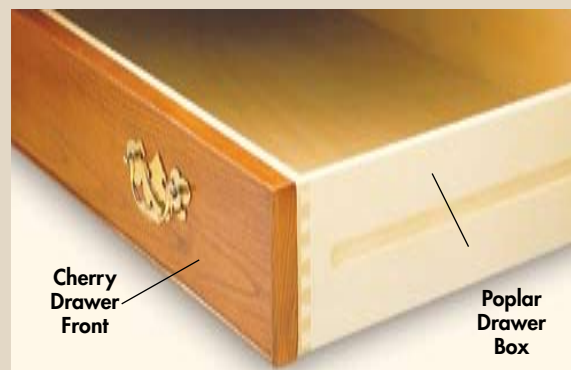
DOWNGRADE. If your dealer carries No. 1 Common, consider buying that instead of FAS or Select. Common boards yield less wood, but often sell for 30% less. You'll have more

waste, but if your project doesn't require a lot of large parts, you can still be dollars ahead.

CREATE QUARTERSAWN. If you look again at the illustration on page 2, you can see that many flatsawn boards will contain sections along one or both edges that have straight grain figure. So rather than pay a premium for quartersawn or rift-sawn stock, you can select wide, flatsawn boards and rip out these straight sections. Use the remnants for unseen parts where the grain figure doesn't matter.

USE LOW-COST WOOD. In many projects, there are a number of parts that will be seldom or never seen. You can build these from a less expensive hardwood to save money. Drawers are a great example.

As shown in the photo at right, I usually build drawer sides and backs from poplar. It costs about half as much as cherry and performs just as well.



▲ Poplar works great for internal parts, such as drawer sides and backs. The wood is stable, easy to work with, and inexpensive.