

# Where Wood Cuts Come From, and Where to Use Them

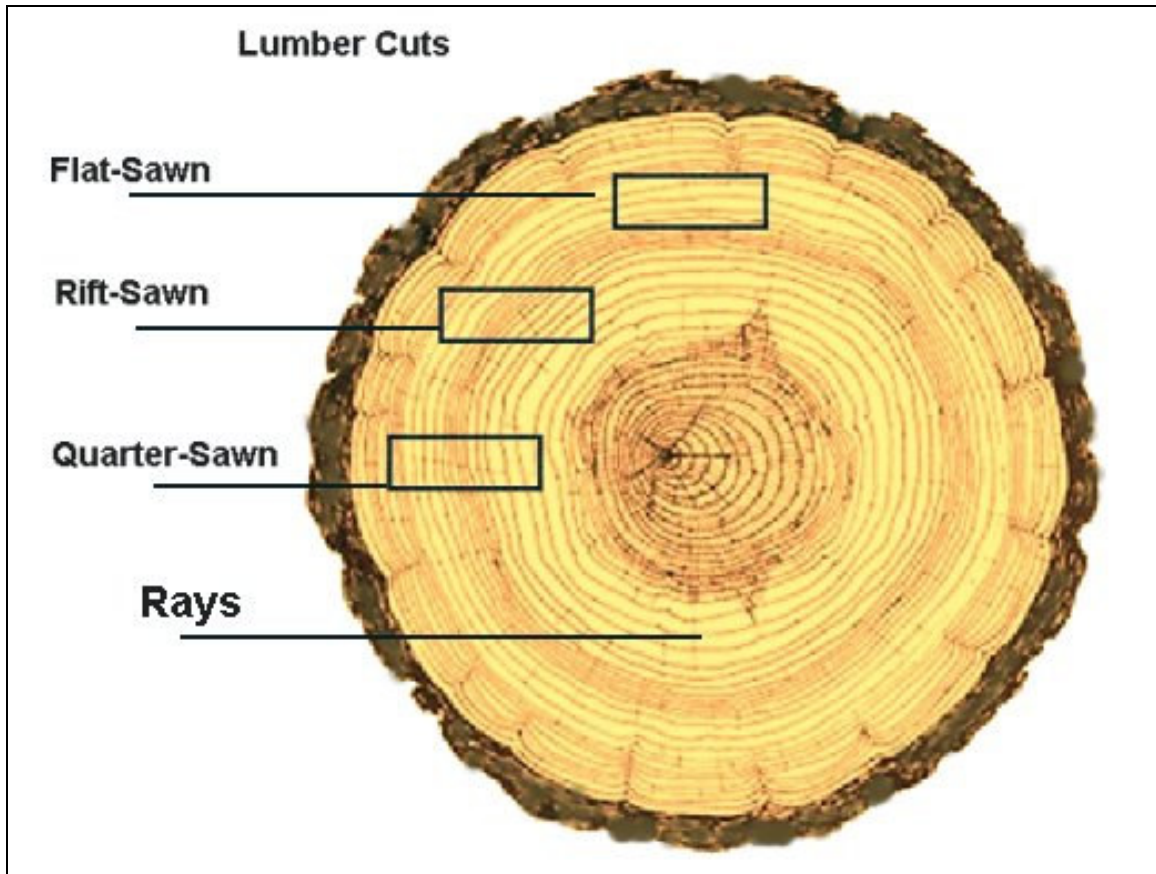
Collected From: <http://www.woodworkweb.com/>

## Part 1

Purchasing wood can get very expensive and if you are not sure what you are buying it can be more than a bit intimidating. When you are standing in front of thousands of board feet of wood, all priced differently and you don't know exactly what to choose, this should be your clue it's time to understand wood cuts. Wouldn't it be nice to walk in to your lumber store and know what kinds of boards you need before you arrive, or at least have some idea of the different cuts and why they differ. Here is you will find these answers. You have probably heard the term "quarter-sawn", which is often referred to as the "best cut" of wood. Well, quarter-sawn is one of the terminologies but it is not always the best cut as you will see in Part 2. The other cuts of wood are called Rift-sawn and Flat-sawn and all depend from where in the tree the boards are cut.

In order to identify which cut of wood has come from what part of the log, it is necessary to look at the end grain of the board. This is because some Rift-sawn and some Quarter-sawn can look the same on the face side of the board.

Before we get too deep into the different cuts, we should take a moment to consider one other factor of wood cuts, and those are the "rays". Rays are those fine lines that seem to radiate from the center of the tree, almost like the spokes of a wheel. The purpose of the rays is help transfer food and water and oxygen within the tree. In some woods and species, rays are easy to spot in others they are hard to see. The problems with rays is that they can often be point where boards crack, especially as they dry. For this reason it is critical that the ends of ALL boards, especially green wood, is sealed to encourage the moisture in the wood to evaporate through the sides of the boards and not through the ends. Wood wants to dry through the ends because that is the easiest way for water to escape because wood is build like a bunch of tiny soda straws all fastened together. When you block the ends of the soda straws water takes much longer to dissipate, therefore there is less twisting and movement in the wood.

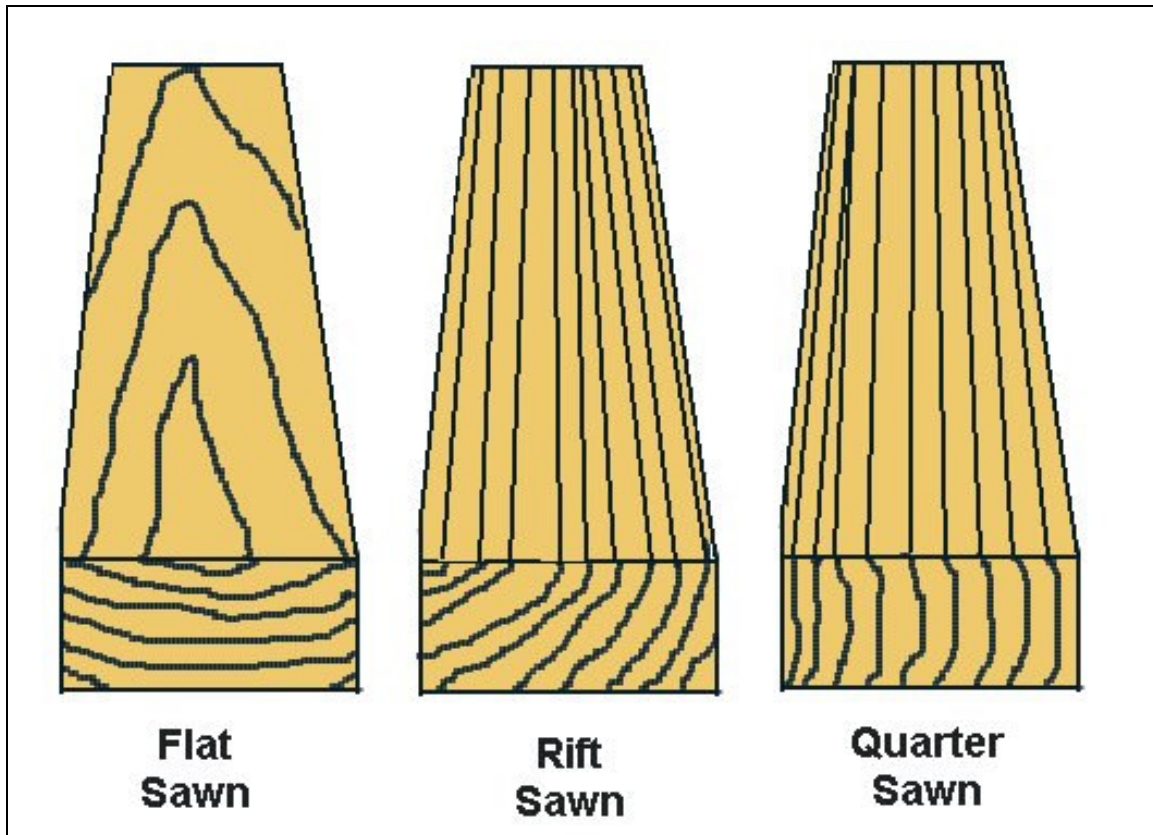


Flat-Sawn boards are cut from the log where the growth rings of the tree are stacked on top of one another, and are basically parallel to wide faces of the board. One of the advantages of this type of cut is the beautiful grain structure which causes "cathedrals", that are visually appealing to many projects, especially those where large panels of wood are exposed.

Rift-sawn boards are those that lie between flat and quarter-sawn cuts. The rift-sawn boards will appear that growth rings will be a little wider than those of quarter-sawn, because of the angle of the cut. The ring pattern of the wood will be at a diagonal across the edge of the board as you can see in the diagrams. Rift and quarter boards will show only straight lines across the face of the boards.

Quarter-sawn boards, as you can see from the diagrams, are cuts from the log where the rings are stacked vertically to one another. These cuts, as with those of any Rift-sawn boards will not show the beautiful cathedrals as a flat-sawn board would.

Be sure to read Part 2 of this article to understand the advantages and disadvantages of these types of cuts and how you can make them work for you in your woodworking projects.



## Part 2

Even though wood has been around as a building product for millions of years, it remains one of the most complex building products due to its inherent properties. The more you learn about wood the more there is to know, and when you are a woodworker, understanding your building medium will put you miles ahead in saved time, costs and satisfaction with your projects. Have you ever wondered why some of your woodworking projects buckle, bend or crack? Well, the answer may be the way it was built, or it could have been the "cut" of wood you used. This article will attempt to help explain some of the characteristics of wood to help you make some better choices in selecting your building materials and assembling your products. Click below to read more ...

If you are starting off by reading this article, stop and go back and read Part 1 of this article first, it will only take a few minutes and it will make this article much easier to understand and apply.

When we look at the three primary cuts of boards, Flat, Rift and Quarter, it is evident that the growth rings run at different angles. This is critical to understanding how wood behaves. You should first of all know that all wood is constantly moving. The reason it is constantly moving is that wood is always either absorbing or dissipating moisture. Where ever wood is stabilizes itself to the conditions around it, if the air is moist, wood absorbs moisture, if the air is dry the wood sheds moisture until it is stable with its environment.

Another thing to know about wood is that during it expansion and contractions it only moves in certain directions. Wood will not expand in the direction of the grain. To explain this a bit more, if you purchase a simple 8 foot 2" x 4" board, and put it in either a moist or dry environment, the board will not get any longer or shorter, it will always remain (within micrometers) of its original 8 foot length.

The same 2' x 4" board if placed in moist or dry atmospheres WILL change width and depth. This is because wood absorbs water within its growth ring directions. Predicting how much a board will expand across its width and depth is very difficult because it depends on the type of wood and the cut of the board. For example a quarter-sawn board will expand more across its face than will rift sawn, and a flat-sawn will expand very minimally across its face, but it will expand a lot across its depth.

It is these same reasons, those of expansion and contraction that make Rift-sawn boards the worst culprits for turning out "propellers" (boards that are often twisted beyond use and end up as firewood).

So ... what are the pros and cons of each type of board and where should they be used?

Flat-Sawn boards are often considered the most beautiful of the cuts with the grain displaying the beautiful "cathedrals" up the grain of the board. These boards are ideal for large visual areas like kitchen cabinet doors, drawer fronts or the sides of dressers or other large similar projects. These boards are quite stable dimensionally, across their width. Where you may not want to use them are as treads when building a stair case as these boards will flex

and bend under pressure, they would be great for risers on steps with the visual appeal and their strength in that direction. For treads on a stair rift would be better but quarter-sawn would be best for the treads. Flat sawn is also a poor choice for decking or flooring. Besides always tending produce slivers, they will also tend to warp or cup due to the expansion across the depth of the boards.

Rift-sawn boards are probably the least desirable of all the cuts. This is because these cuts can vary quite a bit depending on where in the log they are cut. They also tend to "move" in two directions which makes them poor choices for flooring, table tops and decking. Rift cut is often left for building materials like 2x4, 2x6s, 4x4 and so on. This does not mean that good quality hardwoods are not available in rift-sawn cuts, only that it is often not the ideal cut.

Quarter-sawn is considered by most the ideal cut, and in some ways it is. Quarter-sawn is not as attractive as flat-sawn and is really designed for different building areas. Quarter-sawn wood is ideal for table and chair legs, spindles and other long straight pieces. If you are looking for real wooden flooring you will want to lay down quarter sawn (also called edge grain) flooring. It lasts for ever, is quite stable, very strong and does not easily produce slivers.

There is a lot more to learn about wood but this will at least give you a sampling of how woods react and where to use them for more effective and pleasurable projects.