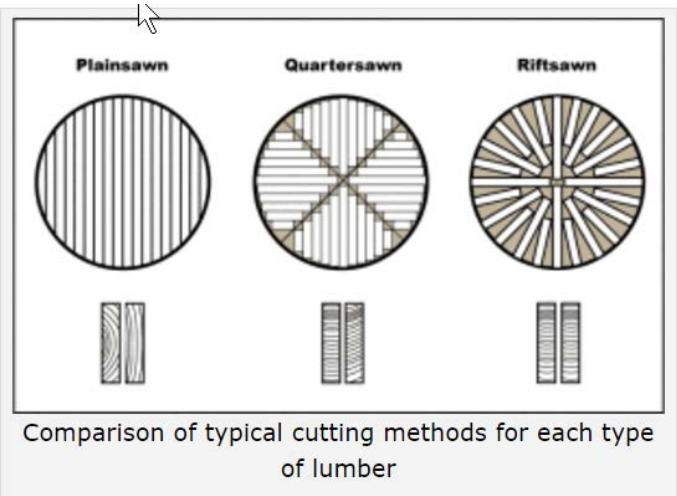
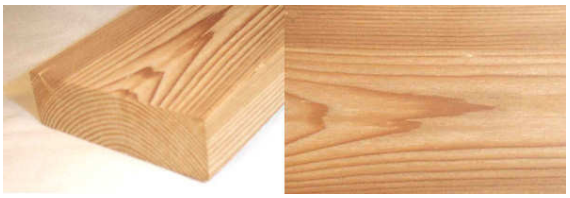
What is the difference between Quarter Sawn, Rift Sawn and Plain Sawn Lumber?

When lumber is cut from logs, it is typically cut in one of three ways: quarter sawn, rift sawn or plain sawn. Each type of lumber is dependent on how the log is oriented and cut at the sawmill. The result is a particular orientation of the growth rings on the end grain of the board and is what defines the type of lumber. The type of cut also determines the figure in a piece of wood and the wood's mechanical properties.



Comparison of typical cutting methods for each type of lumber

Plain Sawn



Plain sawn, also commonly called flat sawn, is the most common lumber you will find. This is the most inexpensive way to manufacture logs into lumber. Plain sawn lumber is the most common type of cut. The annular rings are generally 30 degrees or less to the face of the board; this is often referred to as tangential grain. The resulting wood displays a cathedral pattern on the face of the board.

Quarter Sawn

By definition, quarter sawn lumber is the angle that the annular growth rings intersect the face of the board. However there is little agreement what exactly that angle is. Most define it as between 60 – 90 degrees, although others define it as between 75 – 90 degrees or 45 – 90 degrees. When cutting this lumber at the sawmill, each log is sawed at a radial angle into four quarters, hence the name. After that, each quarter is then plain sawn

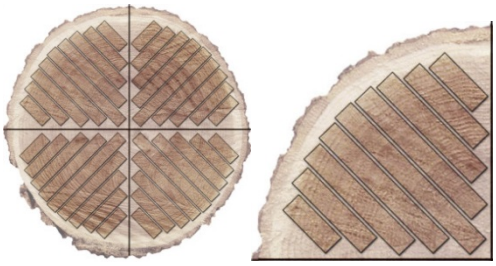
WHY USE QUARTERSAWN?

Quarter sawn wood has an amazing straight grain pattern that lends itself to design. Often used for cabinetry, flooring, high-end custom crafts and furniture, it is the traditional wood used in making mission style furniture.

Dramatic flecking is also present in red oak and white oak. Other wood species that are sought after in quarter sawn are walnut, maple and cherry.

In addition to the desirable grain pattern this type of wood is some of the most dimensionally stable, making it ideal to work with. Quarter sawn lumber exhibits almost no twisting, warping and cupping. It is more resistant to moisture penetration and less prone to surface checking and raised grain.

More dimensionally stable and beautiful to look at? “Is there a downside to it?,” you ask. Well, yes. Because the manufacturing process results in a lower yield and is more labor intensive to produce quarter sawn lumber, the cost is higher. There is also a more limited supply because a smaller number of sawmills produce it.



Rift Sawn

Rift sawn lumber is typically narrow with a very straight grain pattern on the face of the board. Rift sawn lumber is usually used with oak to avoid the flecks that are common in the species. The annular rings or a rift sawn board are about 30-60 degrees to the face of the board, but 45 degrees is the most optimum. Similar to quarter sawn lumber, rift sawn lumber is also referred to as radial grain. The most stable boards, and also the most wasteful to produce, are rift sawn planks. Each of these boards is cut radially perpendicular to the growth rings of the tree. There are large triangles of waste left from between each board. As a result, rift sawn lumber is costly to produce and therefore, the most expensive type of planks available from a log.