



PID
FLOORS

WOOD CUTS

The Different Sawn Faces of Boards



How does a tree become flooring?

Trees are selected by a trained forester according to their required heights and diameters. Proper timing for the harvesting of a tree is crucial and will support the ecological growth of a forest. Opening up the canopy in the taller trees allows for the sustained longevity of the forest by allowing sunlight to reach the younger trees at the lower canopy levels. Chosen trees will be rough cut, have their branches removed, and then will be sent to a mill yard.

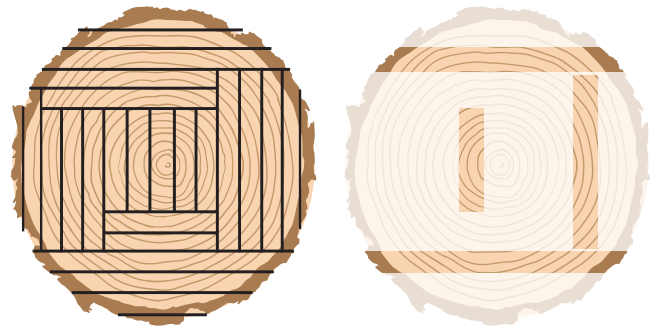
At the mill yard, the logs are graded, based on their quality, and then are sawn into lumber, either by plain sawing, quarter sawing, or live sawing, producing "green" lumber which still contains a high level of moisture content. Green lumber is then stacked in a way which allows for air to circulate through the stacks and the wood is dried to a moisture content of 18-30%. This process is known as air-drying and can take approximately 12-18 months. To further stabilize the wood, it is then gradually dried even further in a series of kilns heated at 100-180°F, which reduces the moisture content of the wood to 6-9%, the necessary levels for use in flooring. This process is known as kiln-drying.

The wood can now be milled into flooring planks. After being sorted and graded, it is milled into the thickness, width, and lengths required, tongue-and-grooved, end-matched, and stored or shipped to its final destination.



Plain Sawn

- Most common and inexpensive method of sawing a log
- Results in the fastest production and requires the least time to kiln dry
- Maximizes yield, especially in wider boards
- Plain Sawn boards exhibit movement in the grain (sometimes called cathedral grain) resulting in varied visual patterns
- Less dimensionally stable than Rift or Quarter Sawn material, resulting in more expansion and contraction across the width of the board from seasonal changes in temperature and relative humidity
- Known as Plain Sawn in hardwoods and Flat Sawn in softwoods



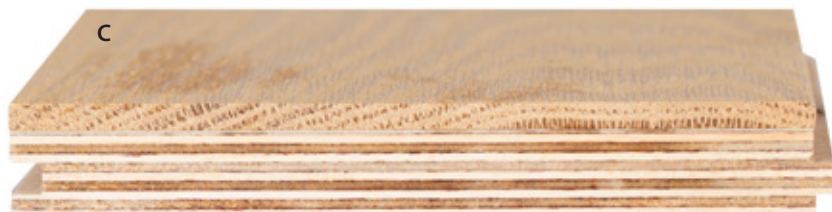
A. Solid White Oak Top View



B. Solid White Oak Cross Section

C. Engineered White Oak Cross Section

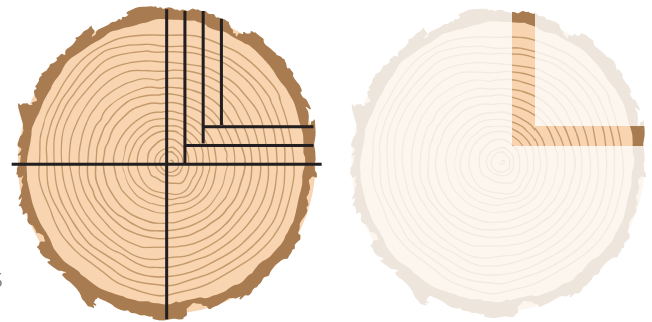
D. Engineered White Oak Top View



Full range of grain variation will appear

Quarter Sawn

- This cut begins with quartering the log, then sawing from the center out, perpendicular to growth rings
- Considered Quarter Sawn when annual growth rings appear at an angle of 45° to 90° to the face of the board in cross section
- Annual growth rings present in a straight grain pattern, with grain lines running parallel to the length of board
- The face of the board will reveal dramatic figure or “flecking” from medullary rays in some species, especially Oaks
- Often combined with Rift Sawn boards and sold as “Rift & Quartered”
- Produces the most dimensionally stable boards
- Known as Quarter Sawn in hardwoods and Vertical Grain in softwoods



A. Solid White Oak Top View

B. Solid White Oak Cross Section

C. Engineered White Oak Cross Section

D. Engineered White Oak Top View

Grain lines run parallel to board length

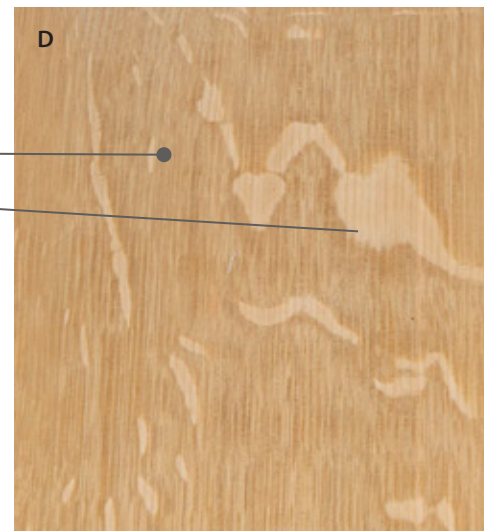
Medullary rays create dramatic figure



Growth rings at 45° to 90°

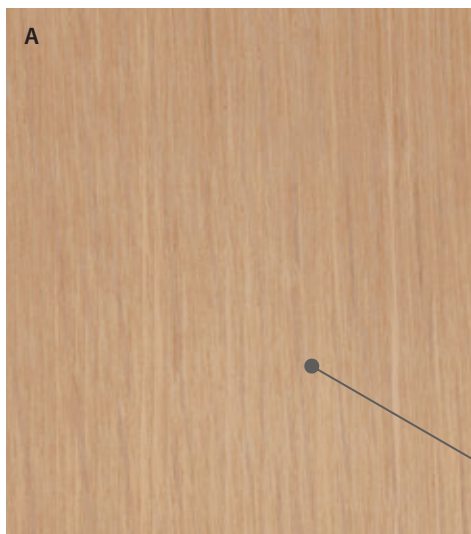


Growth rings at 45° to 90°



Rift Sawn

- This cut begins with quartering the log, then sawing from the center out, perpendicular to growth rings
- Boards are considered Rift Sawn when annual growth rings appear at an angle of 30° to 60° to the face of the board in cross section
- More expensive than Plain Sawn & Quarter Sawn
- Least amount of yield per log, particularly in wider boards
- Annual growth rings present in a straight grain pattern, with grain lines running parallel to the length of board
- Unlike Quarter Sawn material, medullary rays appear only minimally resulting in no figure or “flecking” and the highest degree of uniformity in the grain between boards
- Often combined with Quarter Sawn boards and sold as “Rift & Quartered”
- Excellent dimensional stability compared to Plain Sawn
- Known as Rift Sawn in hardwoods and Bastard Sawn in softwoods



A. Solid White Oak Top View

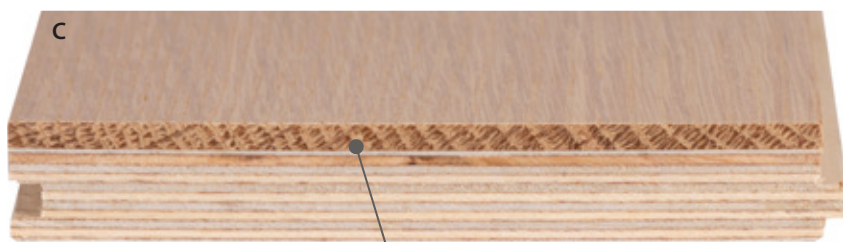
B. Solid White Oak Cross Section

C. Engineered White Oak Cross Section

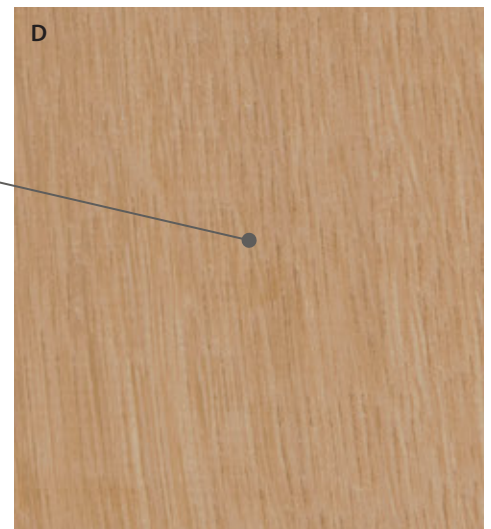
D. Engineered White Oak Top View

Growth rings at 30° to 60°

Grain lines run parallel to board length

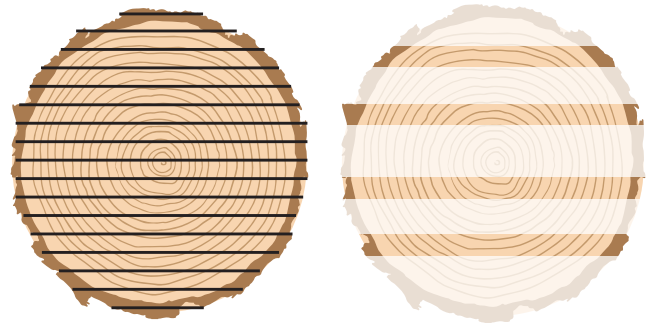


Growth rings at 30° to 60°



Live Sawn

- Produced by cutting straight through the entire log parallel to the diameter
- More economical price point due to maximum yield and minimal waste
- Typically used for wider boards to show full range of grain
- Full range of natural characteristics including a beautiful variety of grain patterns
- Contains a mix of Plain, Rift, and Quarter Sawn characteristics in each board
- Provides more dimensional stability than Plain Sawn, but less than Rift or Quarter Sawn material



A. Solid White Oak Top View
 B. Solid White Oak Cross Section
 C. Engineered White Oak Cross Section
 D. Engineered White Oak Top View

Full range of grain variation will appear

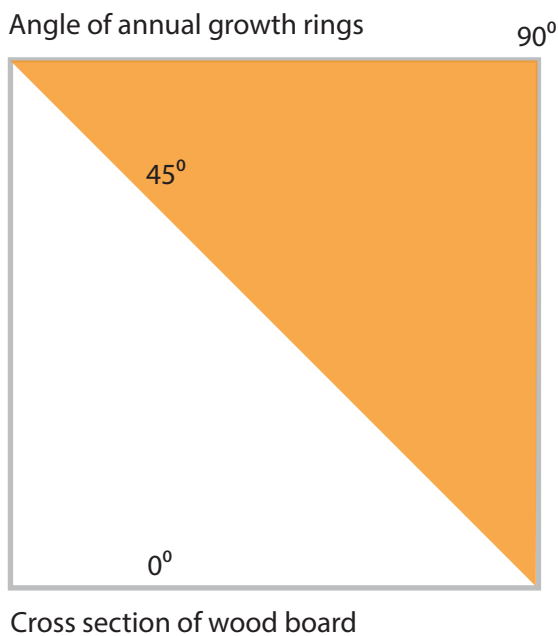


Why do Quarter Sawn and Rift Sawn cost more than Plain Sawn?

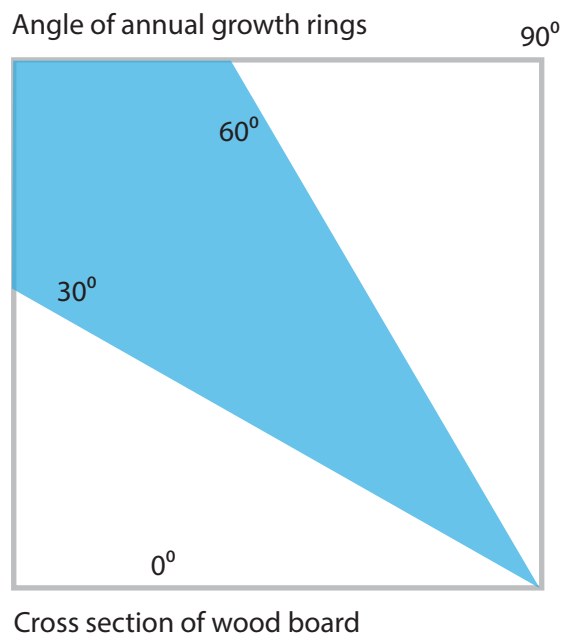
There are several reasons why rift and quarter sawn cuts are more sought after than plain sawn. Some people enjoy the structural stability of rift and quartered, which allows for more flexibility in application and installation. Others enjoy the unique look of the finished cut boards, whether it's the straight, linear grain pattern of rift or the beautiful figure in quartered. However, as these cuts are more costly to manufacture, they will be more expensive to purchase.

- The logs are of a higher quality and must be straighter than those used for plain sawing
- The drying time in the kilns is longer
- The cuts of rift and quartered require specialized equipment and more experienced, skilled sawyers
- Rift and quarter sawn logs require that the log pass through the machine more often than plain sawn logs

QUARTER SAWN 45° - 90°



RIFT SAWN 30° - 60°



Disclaimer: For your convenience, the above information was compiled from various sources that were available. PID is neither responsible for the accuracy, completeness or the content of the material, nor for different, new or changes to the information. You should directly contact the listed references and other reputable sources for the most current, complete and accurate information. In addition, in all instances, you should consult with your professional installer, the guidelines of the manufacturer of the wood flooring and other products purchased, and the various publications of the National Wood Flooring Association.