

The Soundboard

By Dan Cross, About.com Guide



What is the soundboard?

The soundboard is the top of an acoustic guitar, and plays the most critical role in determining the overall tone and projection qualities of the instrument. Though there are many available materials suited to satisfy the structural requirements of a soundboard, none have been found to match the acoustic properties of wood.

How soundboards are built

Traditionally, soundboards have been made from high-quality, quarter-sawn spruce planks that have been carefully seasoned to remove moisture and ensure structural stability. Higher quality instruments use two 'book-matched' pieces of wood, butted together to avoid warping caused by differential shrinking

On the back of soundboards is a pattern of struts and braces that provide stability to the soundboard, while allowing it to vibrate as uniformly as possible. The choice of wood used for these struts and braces is much less critical than it is for the soundboard. However, the bracing pattern can have a significant impact on the sound of the instrument. Guitar makers have tried many different bracing patterns in attempts to add distinctive tonal qualities to their instruments. In addition to bracing patterns, hardwood plates designed to add support to the bridge and soundhole areas are also commonly attached to the underside of soundboards. Though the acoustic impact of these plates are minor compared to the bracing patterns, their size, shape and wood type can also affect the tone of the guitar.

Best woods for soundboards

Spruce has historically been the wood of choice for acoustic flat-top guitar soundboards. However, Luthiers and other large guitar manufacturers very often choose more economical and readily available woods rather than top-quality spruce. Redwoods and cedar, for instance, are often used in soundboards by American guitar-makers to great effect. In some cases, two different woods are used together to give the guitar a distinctive appearance and tone. The following is a summary of woods commonly used in soundboards, and the characteristics of each:

- Spruce: Crisp high end. Big bottom-end. Lots of volume.
- Cedar/Redwood: Brilliant, "bell-like" tone.
- Mahogany: Warm, sweet tone. Tends to make quieter guitars. Generally used in less expensive instruments.
- Koa: Soft, warm, sweet tone. Strong midrange.

Soundboards in cheap guitars

In low-end instruments laminated or plywood soundboards are often used. Although these materials often impart great strength and stability to the instrument, via layers of perpendicular grains, they do not vibrate the same way that natural wood does, generally producing an inferior tone with less amplification. Instruments with laminated or plywood soundboards should be avoided if possible

NOTE: Avian guitars are solid wood, not laminates