

Soundboard Woods	Stiffness¹	Strength²	Hardness³	Weight (lb/ft³)
Balsa: <i>Ochroma pyramidale</i> ⁴	930	7.3	87	11
“Cedar,” Western Red: <i>Thuja plicata</i>	1110	7.5	350	23
Redwood: <i>Sequoia sempervirens</i>	1220	9	450	27
Mahogany, Honduras: <i>Swietenia macrophylla</i>	1390	11.7	800 to 900	31 to 41
Spruce, Engelmann: <i>Picea engelmannii</i>	1300 to 1430	9.3 to 9.7	390	26 to 27
Spruce, European: <i>Picea abies</i> ⁵	1400	9.1	380	25
“Cedar”, Alaskan Yellow: <i>Chamaecyparis nootkatensis</i>	1420	11.1	580	31
Koa: <i>Acacia koa</i>	1570	11.2	1110	42
Spruce, Red/Adirondack: <i>Picea rubens</i>	1610	10.8	490	28 to 29
Spruce, Sitka: <i>Picea sitchensis</i> ⁶	1600 to 1650	10.3	510	28
“Cedar,” Port Orford: <i>Chamaecyparis lawsoniana</i>	1700	12.7	630	29

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- 1 Stiffness represents a wood's resistance to FLEXING under load. Presented in 1k psi. Stiffer woods tend to have higher tap tones. In a thin board such as a soundboard/back/sides, wood (curly, quilt, etc) will almost certainly lower this value due to the alternating grain direction. In a thick board, the difference is usually less significant.
 - 2 Strength represents a wood's resistance to BREAKING under load. Presented in 1k psi. Much like stiffness, strength of thin boards is greatly affected by wood figure.
 - 3 Janka hardness, measured in psi. Harder woods tend to have higher tap-tones.
 - 4 Sometimes used like Nomex to form the core of a composite top (i.e., 0.6mm/1mm/0.6mm spruce/balsa/spruce); the outer layers of wood contribute most of the strength, so the soundboard can be nearly as stiff as a top while being quite light. Also used in conjunction with thin carbon fibre veneer to create the lattice bracing in many Australian lattice-style guitars.
 - 5 *Picea abies* is extremely common in Europe and is used for construction. These values likely represent that common grade of wood rather than the high-altitude/tight-grained material that is so sought after for instrument growth. Tight-grained high-grade wood may be slightly harder/stiffer, as the winter growth (dark rings) is harder and stiffer than summer growth (which constitutes the bulk of the low-grade wood).
 - 6 Parker Guitars uses Sitka as a body wood. It is coated in a fiberglass/carbon fibre/epoxy composite material.

Data compiled by Bryce Ennis. Last updated March 30, 2011.