

About Acoustic Guitars

Acoustic guitars have a long history - four string guitar-like instruments were played in Asia Minor and Syria as early as 1400 B.C. Six-string instruments developed in Spain around the late 1700s to early 1800s, and they are thought to have evolved into the guitars we play today.

The first guitars were small and narrow, but changes made to the guitar's interior bracing by the end of the 19th century allowed designers to produce larger guitars with louder, deeper tones. Other developments included the use of a variety of woods and finishes, a reinforced, raised wider neck and machine tuners in place of the earlier wooden tuning pegs.

Today's acoustic guitars come in a variety of shapes and sizes with special characteristics developed by individual manufacturers.

Woods and Construction

Guitar designers have experimented with the use of many different woods trying to create just the right combination of tonal quality and sound projection in the instruments they produce. Here are some examples of the woods used in modern guitar construction:

Spruce: Most acoustics feature spruce for the soundboard because it possesses the best balance between strength and flexibility. It is strong enough to insure structural durability, but lightweight and flexible enough to project the sound. It is light in color with a straight grained pattern. Spruce has a well-balanced tone for both low and high notes. North American Sitka and European spruce are most commonly used.

Cedar: Also popular for soundboards, the use of cedar creates a slightly darker sound with an accent on the mid-range. It is orange in color with a close straight grain. It is the preferred wood for flamenco style classical guitars.



Mahogany: Mahogany is a strong, stable wood commonly used for guitar necks, backs and sides. It is usually dark reddish-brown in color. When used in the body of a guitar it lends a rich, dark tone. Mahogany is also used for soundboards where it produces a rich, bass-enhanced tone.

Koa Wood - A red-toned, fine-grained, and very hard wood, Koa is native to Hawaii. It is highly figured and beautiful, tending towards a brilliant tone. Koa is used for soundboards, sides and backs by many famous guitar makers.

Maple: Maple is sometimes used for the sides and backs of acoustic guitars. It is very light in color with many variations in grain and figuring. Because it is a very hard wood, it is often used for guitar necks. Maple is occasionally used for the soundboard on laminated top guitars, creating a very brilliant tone.

Rosewood: Scarce and expensive, rosewood is a prized material for the back and sides of acoustic guitars. Rosewood is richly patterned with many shades of browns and reds. Because it is a very hard wood, it is quite reflective and produces a big, brilliant tone. It is also commonly used for guitar bridges and fingerboards. The most desirable rosewood comes from Brazil, but most sources today are in India and Africa.

Ebony: Ebony is very hard and dense, making it an ideal wood for fingerboards in finer guitars. It is occasionally used for bridges as well. Ebony is solid black and very finely grained.

Solid Wood Construction

Today's guitar buyer can choose an instrument made from solid woods or laminated woods. It's important to consider how these materials can effect the tone and quality of the guitar.

Most high quality guitars have a solid spruce top (or soundboard). A solid top guitar produces a richer tone that improves with age. Some guitars also have solid woods on the back and sides, but this does not have as much impact on the guitar's tone as the materials used in the top.

To make a solid top for a guitar, one piece of wood is selected and then split in half. These two pieces are joined together - side-by-side - at the middle of the guitar top - creating a pattern across the grain in the two pieces of wood. Each piece appears



to be a mirror image of the other. This process is called "bookmatching."

To determine if a guitar has a solid top, follow the grain lines of the guitar top to the sound hole. If you can see the grain lines wrap over the edge of the hole, the guitar has a solid top.

Caring for Solid Woods

Solid woods are susceptible to temperature and humidity changes and should be handled with care. If the temperature gets too cold and the air too dry, the wood of the guitar may shrink and eventually crack. Even though cracks probably won't affect the tone of the guitar, it should be taken to a qualified repair technician or luthier for service as soon as possible. By keeping the guitar in an environment that is about 70 degrees Fahrenheit and has 35% - 55% relative humidity, your guitar will stay in great condition for generations to come. A hardshell case and a humidifier are wise investments for the owner of a solid top guitar.



Laminated Wood Construction

Today, quality solid woods have become scarce and costly to use so many manufacturers now make guitars from laminated woods. Although there may be a loss in tonal quality when using multiple layers of compressed wood, their use has allowed the industry to make well-built guitars at a lower cost.

Because of this change in construction, a guitar made with laminated woods does not get better sounding with age and does not usually maintain the multi-generational longevity associated with a solid-top guitar. Over time, the layers on a laminated guitar may separate. This can (in the span of 20 or so years) make the guitar unplayable.

Now that you know a little more about guitar construction, let's look at the types of acoustic guitars available today. There are two basic types - Steel String Acoustic Guitars and Nylon String Classical Guitars. Each is designed for a specific kind of playing and musical style.



Steel String Acoustic Guitars

Steel string acoustic guitars are used to play a wide range of music including blues, country, rock, and folk. They have a "big sound" that's great for either rhythm or solo performers. They use steel strings that are made of silk and steel or bronze.

The traditional steel string acoustic (commonly called the folk guitar) has a large, bell-shaped body. It usually has six strings, but twelve-string guitars are also popular. Basic components include a soundboard and hollow body (or soundbox) with an attached narrow neck across which the strings are stretched. Plucking or strumming the strings generates the sound. The vibration of the strings is transferred to the soundboard (the guitar's top) through the bridge and amplified by the soundbox.

The guitar's top, back and sides are made of different types of wood, each with unique tonal characteristics. The back and sides are often made of mahogany or rosewood and the top is usually spruce or cedar.

Most acoustic guitars have necks made of mahogany with a fretted fingerboard made of rosewood or ebony. On a steel string acoustic, the neck is attached to the body at the 14th fret. Some acoustics feature a "cutaway" body on the treble side which allows the player to easily reach the higher frets.

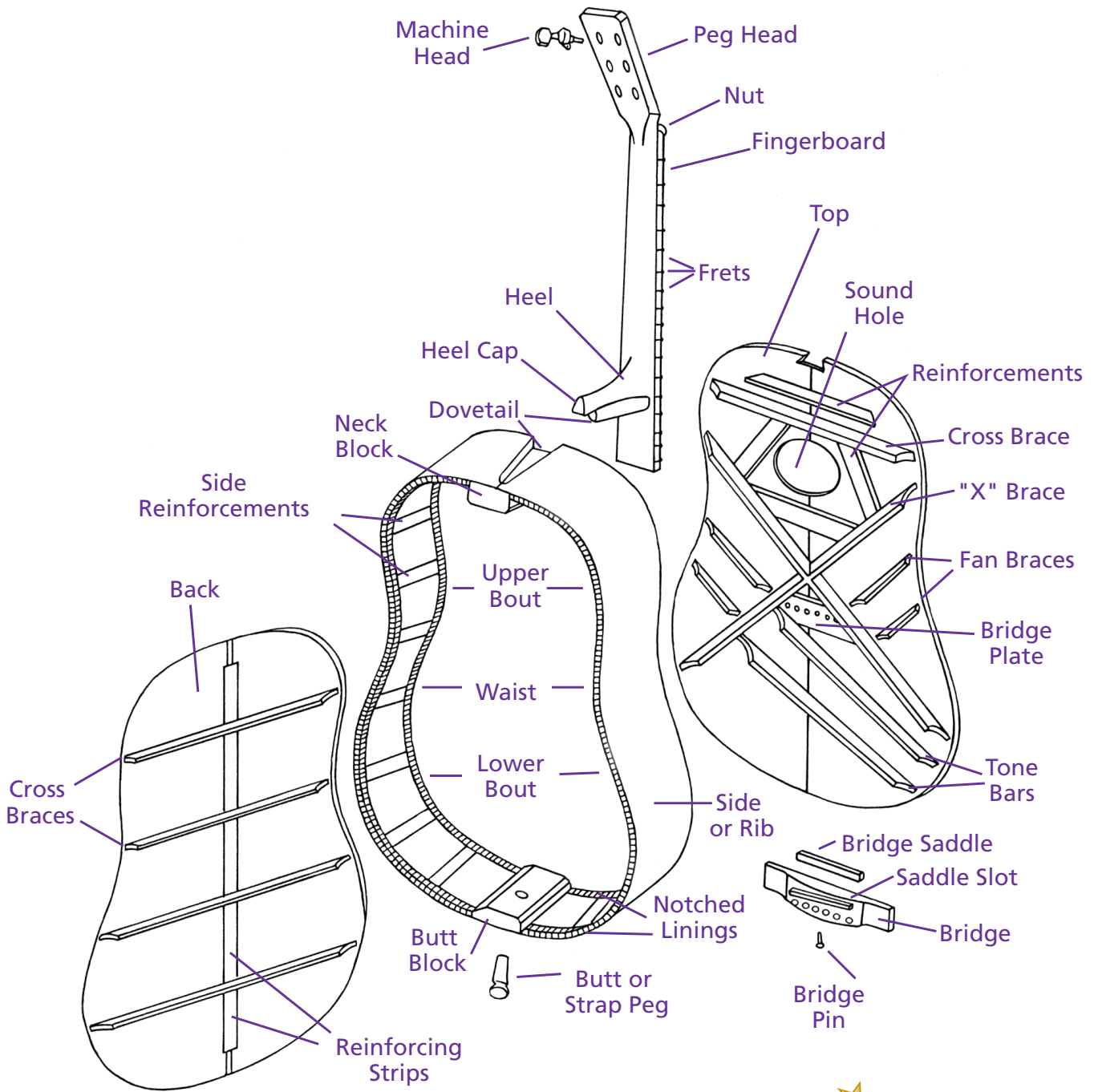
See the section on Woods and Construction for more information.

Because of the tremendous stress created by steel strings when they are tuned to pitch - about 175 lbs. of tension - the guitar's neck can bow forward, causing the strings to raise higher off the neck. This makes playing uncomfortable, especially for beginners. To counteract this, most steel string acoustics feature an adjustable truss rod which can straighten the neck and bring the strings closer to the frets for easier playing action.

During the dry months of winter, when the guitar's wood may shrink, the neck has a tendency to "back-bow." This can cause the strings to vibrate against the metal frets creating "fret buzz." In this case, loosening the truss rod will allow the neck to return to the correct position.



EXPLODED DRAWING OF STEEL STRING GUITAR



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Nylon String Acoustic Guitars

Nylon string guitars are used to play Classical music, Flamenco and Spanish music and other fingerstyle music forms. Today the Nylon String Classic is the world's most popular guitar design, used to play the music of many countries and cultures.

The nylon string guitar is built using the same materials as the steel string acoustic, with certain noticeable differences. The classic style guitar has a smaller, more curved body, and the mahogany neck is wider making it more suitable for playing without a pick (fingerstyle playing.) The neck is joined to the body at the 12th fret instead of the 14th like most steel string acoustics.

The strings, which on earlier guitars were made of gut, are now made of a much more consistent nylon material. The three lower-sounding strings are made of nylon strand cores with a metal wrapping, often silver. Nylon strings create less tension (75 lbs.) on the guitar neck than steel strings. They are more mellow sounding and are softer on the player's fingers - making the classic an excellent choice for many beginners.

The bracing in the classical guitar is much lighter than that of the folk (steel string) guitar, giving it more resonance and projection. Steel strings are not recommended for classical guitars because the higher tension of the steel strings may cause permanent damage.

