Recognizing Humidity Symptoms Part 1

The effects of humidity on guitars are often overlooked in many parts of the U.S. and elsewhere in the world. This issue has historically been disregarded by many store owners, distributors of musical instruments, and, most of all, customers.

Humidity Basics

As a leader in the industry, Taylor Guitars has worked unceasingly over the years to raise awareness of the importance of controlling humidity levels in order to maintain fine acoustic and electric guitars in top condition.

All wooden instruments are affected by humidity. No Solid Wood Instrument is impervious to humidity. That is fact.

This is due to the hygroscopic nature of wood itself: depending on how dry the air is, wood absorbs or gives off moisture, changing size and shape in the process.

We also need to understand what the term relative humidity (RH) actually means. RH is measured on a scale from 0% to 100%, and refers to the amount of water vapor in the air compared to how much vapor the air is capable of holding. So, 50% RH means that there is half as much water in the air as the air is capable of holding.

RH is temperature-dependent: the higher the temperature, the more water vapor the air can hold. So, just by turning up the heat, you lower the RH – a common issue in wintertime with most heating systems in homes or stores. As a rule, the opposite is also true, which is why RH naturally rises overnight as temperatures cool down. However, the only way to know for certain what the RH is at any given point in time is to use a reliable hygrometer, as will be discussed later in this course.

Effects of Low RH

Low RH levels over a period of time cause physical symptoms in the guitar. It is vital to learn to recognize these symptoms, and monitor your guitars regularly, so that you can take corrective action before the symptoms develop into serious damage to the guitars.

Solid-wood instruments are structurally and sonically at their best when they are kept at the same RH as when they are built. Taylor and other high-end manufacturers maintain the climate in the factory so that it is right in the middle of the scale, that is, right around 50%. A window of 5% higher or lower is acceptable, so the safe range for a guitar is 45% to 55% RH. That means the guitars need to be kept in that atmosphere when they go out to live in the world, whether or not the natural climate is drier or wetter.

If the region where you live has a very low average RH, such as in a desert climate, you will have to work at maintaining the air around your guitars at an acceptable level, at least 45% RH. Today, this is entirely possible, thanks to modern technology, which will be discussed shortly.

Symptoms of a Dry Guitar

The wood in a guitar shrinks as it dries out from being in low RH too long. This causes a number of symptoms.

Structural symptoms caused by low RH:

1. Sharp fret ends – the fretboard shrinks but the metal frets do not, so the fret ends stick out
2. Sides of the nut are hang out past over the nut slot
3. Bridge lifting – shrinkage of the top may cause the bridge glue joint to come loose
4. Binding shrinking and/or cracking on the neck or body
5. The top and back flatten out - no arch left

Playability issues caused by low RH:

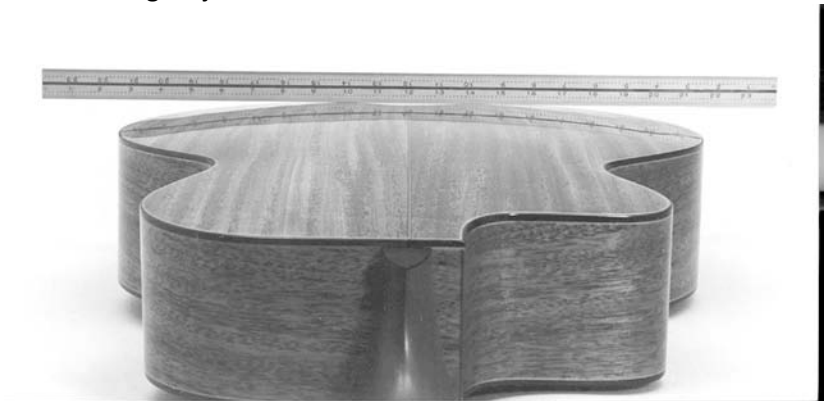
1. Action becomes too low or lower than normal; the guitar starts to buzz
2. The saddle would need to be raised to have same action as before
3. Tone of guitar changes as the geometry is incorrect and the wood becomes more brittle
4. Fret ends sticking out feel sharp and make the guitar uncomfortable to play

<u>Symptoms of a Wet Guitar</u>

High RH (above 55%) over a period of time causes a different set of symptoms and problems, which can be just as harmful as low RH.

Physical symptoms of high RH levels:

1. Instrument has extremely high action, and is too hard to play
2. Finish popping off or lifting in areas around the guitar
3. Bridge corners lifting
4. Fogging in the finish
5. MOLD inside the body of the guitar
6. Water stains inside body of guitar
7. Binding separation in waist and bouts of instrument and cutaway areas
8. Extreme arch in top and back of solid wood instruments
9. Pinching at the tail block, as the top and back swell up around the block, but are restricted by the glue joint at the block.



Guitar Humidifiers

If you are unsure of the humidity level of your instrument (and its case) there is a simple and effective way to check it. We call it the 24-hour rule. Here is how it works:

Use a normal sponge-style humidifying device, such as Planet Waves or Damp-it brand guitar-case humidifiers. Follow the instructions below exactly; otherwise, you risk damage to the instrument.

1. Soak the sponge in room temperature water in the sink or in a bowl.
2. Wring out the sponge completely, so there is no water dripping out of the sponge. (For Planet Waves, put the sponge into the device only after water has been completely wrung out.) If dripping water is left in the sponge, it will damage the instrument. We don't want to add water to the guitar, just water vapor (evaporated water).
3. Wipe off any excess water from the outside of the sponge units with a towel.
4. With the guitar in the case, install the humidifier between the D and G string of the instrument, then close and latch the lid tightly. (The Damp-it brand will sit inside the instrument while attached to the strings). Do not cover the sound hole.
5. After a full 24 hours, open the case and check the humidifier. If it is still soft and pliable, and you can wring a drop of water out of it, the guitar is fine, humidity-wise.
6. If you open the case and the sponge is dry and hard, not pliable, redo all the above steps, and wait another 24 hours to open the case.
7. Continue this each day until the unit remains pliable, and/or you can wring a drop of water out of it.

This procedure ensures that the humidity level of the case and guitar are most likely where they need to be. This does not mean you never need to look at it again, and all your humidity issues are gone. You may need to repeat the procedure on a weekly or monthly basis, depending on the season and the climate where you live. It is up to you to maintain your instrument.