

Are You Burning “Sizzle Wood?”

(Excerpts from an article written by Peter Lammert, Stewardship Forester, Maine Forest Service)

Are you burning “sizzle wood” in your stove? It’s a “new species” of hardwood that is introduced to the not too knowledgeable wood burning public every late summer and fall by some of the stick wood suppliers who haven’t learned their lessons about the hygroscopicity of wood. Come to think of it, if the wood burner understood hygroscopicity, they wouldn’t be buying any of this wood to burn this winter.

...Hydro-sco-pisity (you won’t find this one in Webster so don’t bother checking to see if I’m right, just sit back and listen to the common sense!) is the ability of an object to absorb moisture. This ability is on display now at all your older lumber yards where spruce, fir, pine (and lord only knows what other species) were mixed in the pile before it went to the mill. This lumber is meticulously dried to 19% moisture content (m.c.). At 19% m.c. all free water molecules inside, between and along wood cells have been evaporated, and the wood, if kept at this moisture content or drier, cannot decompose). It is then surfaced by machines...then wrapped in a waterproof, five sided “cocoon” where upon it is shipped to the local lumberyard. There, in most cases, the bundles, which have been stacked on the ground outside in the elements, are ripped open and this waterproof cover is then allowed to become one of the new categories of unidentified flying objects that one sees whizzing around commercial building sites! There in the pile, after the strapping is cut, sits that truly “dry” (19 % m.c. or less) lumber that will now be exposed to rewetting many times before it is finally under a waterproof material again...

Well..., this brings us back to hygroscopicity, or in this case, the ability of “dry” wood to reabsorb water. Trees, from which most firewood is produced are 50% m.c. while standing and growing in the woods, except for White Ash which can be as low as 35% m.c. If the trees (from which your firewood dealer processed the load he just delivered to you) were just cut and delivered to him, then your firewood would have a moisture content of about 50%. Voila – “sizzle wood.” Wood has a heat value of about 8,000 BTU’s per pound when it is absolutely dry... So, the trick to getting the most heat out of your firewood is to get it as dry as you can before burning...

Air drying your firewood outside is governed by the “3 T’s” rule – Time, Temperature, and Turbulence. First, we will talk about temperature. The air temperature must be above 40° F to accomplish any drying at all. Below 40° cell moisture movement is un-noticeable, and below 32° it becomes ice. So, if 40° F and above is drying weather, then drying outdoors limits you to the months where the ambient temperature is 40° or above day and night.

Next we need “turbulence” or air flow to help remove the moisture from the ends and sides of the split pieces. Splitting the wood helps allow for added air flow. Round wood usually still has the bark on... What is the function of bark? Many, but the most important (function) to the wood burner is its waterproofing ability, especially the bark of White Birch. Unless the bark is removed, the wood under the bark can’t release the moisture during the time it is supposed to be drying or seasoning...

Now we can discuss the third “T”, or the time factor. If the air temperature is 40° F or higher but there is little to no air flow, then the drying will take an entire summer if you cover the pile so that not one drop of rain is allowed to re-wet the wood! For example, if the air flow is 20 mph or more and the air is dryer than the wood, then the wood will quickly dry down to the moisture content of the air. If the temperature is 90° and there is no air flow, then you grow mushrooms and fungi!... To re-cap, split wood dries slowest when it is cold and little or no wind is blowing. It dries quickest when the piles are single tiers wide...covered and the temperature is 70° F and above with 15 mph plus wind blowing along the ends of the sticks.

When do the latter conditions occur in Maine? According to my old wood tech Professor Gregory Baker at UMO, these drying conditions of warm temperature and winds above 15 mph can occur during the months of April through early July. In the latter part of July, the higher daily humidity can slow down the drying process or even reverse it if it is humid. Remember, hygroscopicity!

So, if you would like to eliminate the “sizzle wood” next winter, get your wood cut, split, single tier stacked at least 4” off the ground, and covered before the drying winds of spring help the mud disappear. A side benefit to burning dryer wood is that you won’t burn as much (if you burn green wood you are spending 50% of its heat value to dry it out so the other 50% will actually burn – that’s the sizzle you are hearing). Also your chimney liner will appreciate the dryer wood by not accumulating as much creosote as it does when you burn green wood. This is especially true in an airtight stove.

Oh yeah, airtight stoves ... well, that’s another story!...