



## Dry Cupping in Engineered Hardwood



When you're talking about problems with wood floors, nothing gets more attention than moisture and its consequences, like cupping. But lack of moisture can be just as big a problem as too much moisture. This time of the year, when relative humidity starts dropping to its lowest levels, lack of moisture causes lots of problems for wood floors.

Everyone in the wood flooring business knows (or should know) that during winter, wood floors, especially solid floors, tend to dry out, creating seasonal gaps known as "cracks" between boards. When customers call and complain about the gaps, most people in the business can confidently explain why the gaps are happening and why they will probably disappear when the RH increases in spring.

Cupping is generally associated with a moisture differential within individual pieces of hardwood flooring, usually excessive moisture on the underside of the flooring causing the underside of the hardwood to grow more than the top side.

Dry Cupping happens when the top of the board is drier than the bottom of the board. But it can also happen because of excessive drying on top of the board. Dry Cupping is caused by the moisture levels of wood actually *decreasing*. The moisture content of a given plank of engineered flooring is at a certain level at the time of its production and storage. Then planks suddenly find themselves in a different, drier environment that happens usually during the winter months with engineered products. It starts around the end of October and ramps up by January and February. The top layer—the wear layer—tends to dry out much faster than the core board material, and the thinner the wear layer, the faster it is likely to dry out. As the wear layer quickly dries, it wants to pull away from the bottom core material, which has a cross-grain construction, is a lot more stable and is securely fastened to the subfloor. The result is the appearance of a cupped floor. Most of the time you'll notice the corners are lifting or curling first.

Cupping isn't the only problem that happens when engineered and prefinished floors become stressed due to low RH. Splits and checks also can appear. Splits are openings that go all the way through the board from top to bottom (you can drop a dime down it) and checks are similar but smaller (not the entire depth of the board). The stress in the boards can also cause wrinkles or ruptures in the finish. Delamination within the veneers can also happen at very low relative humidity.

### Know What Can Happen

In many cases, contractors and the homeowners does not understand what low RH can do to a wood floor. Hardwood floors need normal living conditions to function properly. Typical recommendations are between 35 to 55 percent RH (ideally, 45) and a temperature between 60 to 80 degrees Fahrenheit. Looking at the other woodwork in the house, like cabinets and trim, can give you a clue as to how comfortable the RH levels are for wood in the home.

Where low Relative Humidity coincides with the heating season, a whole-house humidification system that turns on with the heat can help. Wood is a porous material with a natural cellular structure that expands and contracts depending on the amount of relative humidity present in the surrounding atmosphere. Keeping humidity levels constant is must with hardwood flooring regardless if it is Solid or Engineered.