



Seattle Floor Service: The Behavior of Wood

Wood Floor Installation & Finishing

Any article made of wood is subject to expansion and contraction resulting from changes in humidity. Wood is a hygroscopic material, which means it will absorb moisture in a wet environment and give off moisture in a dry environment until the wood reaches equilibrium. Approximately 1% dimension change takes place with each 3% change in the moisture content of the wood. This applies to hardwoods more than soft woods and maple is especially susceptible to this dimensional change relative to moisture content.

Air can hold a certain amount of moisture at a certain temperature. Relative humidity expresses what percentage of this maximum value the air is actually holding. Warm air can hold a great deal more moisture than cold air. For example, if a sample of air at 32 degrees and 100% relative humidity is heated to 75 degrees, its relative humidity will drop to 20%.

During winter months, the interior relative humidity of residences drops significantly. Wood flooring (as well as wooden furniture and any other wooden objects) will shrink as a result of this decrease in relative humidity. This shrinkage will manifest itself in the form of slight cupping. These kinds of seasonal changes in wood flooring are normal, and are not defects. Seasonal changes in wood flooring can be mitigated through the use of climate control devices.

Wood flooring should be stored in such a way as to minimize exposure to humidity levels greater than that of the normal level of the structure or residence in which it is to be installed. Wood flooring should be stored inside the enclosed structure or residence after heating and cooling systems are operational, near where the flooring is to be installed. Wood flooring must not be stored in a garage or other unheated structure, as the relative humidity in an unheated structure will be significantly different than the relative humidity inside the structure. Wood flooring must not be stored in a structure or residence where propane heaters are in use, as propane heaters generate large amounts of moisture as a by-product. Failure to follow proper storage procedures may result in expansion and contraction beyond the normal expansion and contraction described above.