Climate Moisture and Acclimation

Wood is extremely sensitive to climate and moisture, and should always be stored so that conditions between 60 and 80 degrees Fahrenheit and 30 to 50 percent relative humidity can be maintained – in other words, normal living conditions in most homes. Extreme temperature and moisture levels can destroy your flooring before it's even installed, so climate control during storage, transportation, and installation is vitally important.

SYP Direct takes precautions to ensure our product is always stored and transported at the optimal temperature and moisture level. Here are tips to ensure you do the same after receiving your flooring so it's still in pristine condition when the customer steps onto their new hardwood floor.

Remember that hardwood loses moisture and shrinks in dry climates, and expands in humid climates. Ensure that you allow your hardwood to acclimatize to the moisture content and temperature of its new home before installing it. This process takes at least two weeks, sometimes longer, so do not rush into installing a wood floor. The last thing you want is to install a new hardwood floor and have the wood shrink or expand after installation.

If you take anything away from this article, remember that the acclimation process is not about just time. It is more a matter of waiting to achieve results, rather than waiting until a certain number of days or weeks has passed. Factor the species of wood, the room temperature, relative humidity, and moisture content of both the flooring and the environment.

Two tools to help measure this process are a wood moisture meter, which can check the water content of the wood, and a hygrometer, to check the relative humidity of the environment in which it will be installed. You should allow hardwood to acclimate in an environment with the same living conditions as its final destination.

Wood flooring is a hygroscopic material subject that expands or contracts with the amount of moisture, temperature, and humidity within the surrounding environment. Wood flooring simply needs to reach moisture content level in equilibrium with the surrounding environment (EMC) where it will be installed. The process of reaching this equilibrium is defined as acclimation.

According to the National Wood Flooring Association, the process of acclimation is as follows:
Follow manufacturers' guidelines at all times.

1. Acclimation can be facilitated by breaking the floor units into small lots and/or opening the packaging. A common practice is to cross-stack the materials with spacers (¾" to 1" sticks) between each layer of flooring to allow air circulation on all sides of all boards.
2. Most recommendations state that the materials need to acclimate from a minimum of 3 days up to no given maximum. While it takes time to acclimate a product, the most important aspect is that the materials reach a moisture content that is in equilibrium with its expected use. Acclimate the materials as long as necessary to accomplish this task, taking the necessary moisture readings to indicate when the materials have reached the proper moisture content and when no further changes occur.

Finally, if the installation site is in a location with very wet winters or very dry summers, for example, you may consider completing the installation during the fall or spring; aim for a time when the humidity is not too high or too low.The most important thing you can do to prepare hardwood for installation is to acclimate it properly to the normal living conditions of its new home. Even in very wet or dry climates, proper acclimation is the key to successful hardwood flooring installation.

Acclimation, sometimes called conditioning, is the process of allowing wood to reach its equilibrium moisture content (EMC) within “normal living conditions.” It is also one of the most important steps of hardwood floor installation. Not properly acclimating or conditioning wood flooring may cause excessive expansion, shrinkage, dimensional distortion, or even structural damage.

If the flooring material being installed does not have specific acclimation and conditioning instructions, here are the steps to follow:

Step 1: Make sure that the heating and air conditioning units are in operation at least five days before delivery of the flooring, during installation and after the flooring is installed. If it is not possible for permanent HVAC to be operating before, during and after installation, a temporary system that mimics normal living conditions may enable installation to proceed.

Step 2: Once the facility has been confirmed to be at the expected living condition, proceed with delivery of flooring material. Check the moisture content of the wood flooring as soon as it is received at the jobsite.

Step 3: Check the moisture content of the subfloor. The moisture content of the subfloor should coincide with the temperature and relative humidity of the jobsite, based on the temperature, relative humidity and average moisture content chart shown below. This moisture content reading will give you a good idea of where the

conditions in the facility are being maintained and allow you to compare to the expected “in-use” conditions.

Step 4: Ensure the flooring material is exposed to the “normal” conditions of the environment in which it is being installed. To accomplish this, break the flooring units into small lots and/or open the flooring packages. Cross-stack the material with spacers between each layer to allow air circulation on all sides of all boards. Start stacking elevated from the subfloor. Acclimate to equilibrium moisture content for as long as it takes. Some species will take much longer to reach equilibrium moisture content than others. It is never a good idea to base acclimation on time alone, but rather on actual moisture content. Check with the manufacturer before beginning this stage, in case they have different acclimation instructions.

Step 5: If the flooring material cannot be delivered to an adequate jobsite, pre-acclimate the material in an off-site location set to mimic the expected conditions of the jobsite. Then deliver pre-acclimated material to the jobsite once “normal conditions” can be established. Again, refer to the temperature, relative humidity and moisture content chart to determine ideal conditions.

Step 6: Finally, make sure the flooring and wood subfloor moisture content is within the acceptable range for the jobsite. The subfloor should be within 4 percent for strip and 2 percent for plank wood flooring.

Wood is only acclimated or conditioned once it reaches its equilibrium moisture content for the space in which it is expected to perform. Equilibrium moisture content is based on an “unchanging” environment. After a wood floor has been installed, changing conditions within the environment will change the equilibrium moisture content of the wood floor, ultimately resulting in dimensional change.