

Six Steps to Acclimation Success

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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.

MOISTURE CONTENT OF WOOD AT VARIOUS TEMPERATURES AND RELATIVE HUMIDITY READINGS																			
Temperature (° Fahrenheit)	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120
30	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3
40	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3
50	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3
60	1.3	2.5	3.6	4.6	5.4	6.2	7.0	7.8	8.6	9.4	10.2	11.1	12.1	13.3	14.6	16.2	18.2	20.7	24.1
70	1.3	2.5	3.5	4.5	5.4	6.2	6.9	7.7	8.5	9.2	10.1	11.0	12.0	13.1	14.4	16.0	17.9	20.5	23.9
80	1.3	2.4	3.5	4.4	5.3	6.1	6.8	7.6	8.3	9.1	9.9	10.8	11.7	12.9	14.2	15.7	17.7	20.2	23.6
90	1.2	2.3	3.4	4.3	5.1	5.9	6.7	7.4	8.1	8.9	9.7	10.5	11.5	12.6	13.9	15.4	17.3	19.8	23.1
100	1.2	2.3	3.3	4.2	5.0	5.8	6.5	7.2	7.9	8.7	9.5	10.3	11.2	12.3	13.6	15.1	17.0	19.5	22.9
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
	Relative Humidity (percent)																		

Chart taken from Wood Handbook: Wood as an Engineering Material, Agriculture Handbook 723, Forest Products Laboratory, U.S. Department of Agriculture

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.