

Wood Moisture Range



Dimensional Change

Wood flooring is as a hygroscopic material meaning that it absorbs and releases moisture as influence by surrounding humidity. As such, flooring expands when absorbing airborne moisture when humidity is high and shrinks when releasing moisture into dry air when humidity is low.

Preferred Conditions

Wood associations and wood flooring manufacturers recommend a range of 35% to 50% average seasonal humidity as the most desired condition for wood floor installations based on:

- The recommended humidity range (35% - 50%) coincides with the wood moisture content range (7% - 9%) at which flooring is typically manufactured.
- Seasonal humidity of 35% - 50% provides a desired comfort level for indoor activity.
- Maintaining a seasonal humidity range of 15% between the dry heating season and humid summer months assures limited seasonal shrinkage and growth.

Regional Influence

Regional locations and associated arid or humid climates can greatly influence seasonal humidity ranges to prevent providing the recommended 35% to 50% range. Such installations require committing to a wood moisture content range associated with anticipated seasonal humidity.

15% Humidity Range

Regardless of humidity levels, whether within the preferred recommended 35% to 50% seasonal variance or otherwise regionally related, **maintaining a seasonal range of 15% average humidity assures limited dimensional change** and prevents issues associated with excessive shrinkage and/or expansion as the humidity range becomes wider.

Mechanicals / Regional Location

The following includes a chart for determining wood moisture content based on expected temperature and humidity, and historical wood moisture content range by region as provided by the USDA Forest Products Laboratory.

Wood moisture when equalized to temperature and humidity

TEMPERATURE	RELATIVE HUMIDITY												
	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%
50	3.6	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.2	12.3	13.4	14.8
60	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
70	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
80	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
90	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

Historic wood moisture content based on Regional Location

