



WARRANTY INFORMATION

Thank you for your interest in the products and services of Yoder Lumber.

This Limited Warranty applies to physical goods, and only for physical goods, purchased from Yoder Lumber (the "Physical Goods").

What does this limited warranty cover?

This Limited Warranty covers any defects in material or workmanship under normal use during the Warranty Period. During the Warranty Period, Yoder Lumber will repair or replace, at no charge, products or parts of a product that prove defective because of improper material or workmanship under normal use and maintenance.

Inspection of Physical Goods should be performed by the customer immediately upon receipt.

What will we do to correct problems?

Yoder Lumber will either repair the Product at no charge, using new or refurbished replacement parts or issue credit for the purchase amount of the defective material.

How long does the coverage last?

The Warranty Period for Physical Goods purchased from Yoder Lumber is 90 days from the date of purchase. A replacement Physical Good or part assumes the remaining warranty of the original Physical Good or 90 days from the date of replacement or repair, whichever is longer.

What does this limited warranty not cover?

This Limited Warranty does not cover any problem that is caused by:

- Conditions, malfunctions or damage not resulting from defects in material or workmanship
- Damages to property or goods not sold by Yoder Lumber
- Physical Goods not stored or installed in accordance with applicable woodworking standards (available on request)
- Goods damaged by the customer or a 3rd party due to misuse, abuse, accident, negligence, or failure to care for the Physical Good
- Additional costs of installation, work done to, or repair of Physical Goods by the customer or a 3rd party

What do you have to do?

To obtain warranty service, you must first contact us to determine the problem and the most appropriate solution for you. Please have appropriate proof of purchase and documentation of proper product care available.



Yoder Lumber™
Quality is Our Tradition

Wood Product Storage and Care Guidelines

Introduction

For most regions of North America, hardwood lumber destined for manufacture into products such as furniture, cabinets, millwork, table tops and others is carefully kiln dried to 6-10 percent Moisture Content (MC). Products that are made from kiln-dried lumber must be stored in a manner which allows the wood products to remain stable in order to prevent serious problems that may arise from the exchange of moisture between the ambient environment and the wood products.

Yoder Lumber warrants its products from defects in workmanship, including improper wood moisture content (6-10% MC), defective glue joints, and other manufacturing defects. Yoder Lumber does not warrant products from issues that arise from improper storage of wood products. Some issues that can arise from improper wood storage or usage include:

- Cracking or end splits, in the wood or glue joints.
- Bow, twist, cupping, or other types of warp.
- Other types of wood failure

Wood Movement

Wood is a hygroscopic material, and under normal use and conditions all wood products contain some level of moisture. Wood readily exchanges this molecular moisture with the level of water vapor in the surrounding atmosphere according to the existing relative humidity. In high humidity, wood picks up moisture and swells. In low humidity, wood releases moisture and shrinks.

Measurements of temperature and relative humidity in storage or work areas can be used to calculate Equilibri-

um Moisture Content (EMC), the total moisture content at which a wood product will finally settle once it is fully acclimated to its environment. If this EMC varies from the wood product's initial moisture content, serious problems can and will occur. A rule-of-thumb is that EMC variations greater than 2% from a wood product's actual moisture content will result in potential problems.

Wood products are manufactured from wood that has been kiln dried to an appropriate average moisture content. Subsequent dimensional change in wood is and always has been an inherent natural property of wood. These changes cannot be the responsibility of Yoder Lumber. Specifically, responsibility for dimensional change problems in wood products resulting from improper temperature and humidity levels lies with the customer.

Ambient Temperature and Humidity

Although there are many important factors which can affect a wood product's stability, the primary focus should be on controlling the environment in which it is stored and used. Since wood products are dried to 6-10% moisture content it is important to store and use them in an environment that results in an EMC that falls in this range. The **EMC Table** below shows a detailed listing of temperature and relative humidity combinations and resulting EMC values for these environments. Highlighted in blue are acceptable combinations of temperature and relative humidity recommendations that result in acceptable EMC values. The dark blue values should be the target values set for storage and use areas while the light blue areas are acceptable values.

Yoder Lumber requires that ambient temperature be kept between 50-90 degrees Fahrenheit at all times. Extreme

EMC Table											
Relative Humidity (%)	Ambient Air Temperature - Degrees Fahrenheit										
0	30	40	50	60	70	80	90	100	110	120	130
5	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.1	1.1	1.0
10	2.6	2.6	2.6	2.5	2.5	2.4	2.3	2.3	2.2	2.1	2.0
15	3.7	3.7	3.6	3.6	3.5	3.5	3.4	3.3	3.2	3.0	2.9
20	4.6	4.6	4.6	4.6	4.5	4.4	4.3	4.2	3.0	3.9	3.7
25	5.5	5.5	5.5	5.4	5.4	5.3	5.1	5.0	4.9	4.7	4.5
30	6.3	6.3	6.3	6.2	6.2	6.1	5.9	5.8	5.6	5.4	5.2
35	7.1	7.1	7.1	7.0	6.9	6.8	6.7	6.5	6.3	6.1	5.9
40	7.9	7.9	7.9	7.8	7.7	7.6	7.4	7.2	7.0	6.8	6.6
45	8.7	8.7	8.7	8.6	8.5	8.3	8.1	7.9	7.7	7.5	7.2
50	9.5	9.5	9.5	9.4	9.2	9.1	8.9	8.7	8.4	8.2	7.9
55	10.4	10.4	10.3	10.2	10.1	9.9	9.7	9.5	9.2	8.9	8.7
60	11.3	11.3	11.2	11.1	11.0	10.8	10.5	10.3	10.0	9.7	9.4
65	12.4	12.3	12.3	12.1	12.0	11.7	11.5	11.2	11.0	10.6	10.3
70	13.5	13.5	13.4	13.3	13.1	12.9	12.6	12.3	12.0	11.7	11.3

high or low temperatures can result in serious problems with wood products.

Testing Relative Humidity and Temperature

It is the responsibility of the customer to regularly test the areas in which wood products are stored and used. In the event of a warranty claim Yoder Lumber may request detailed information on the temperature and humidity of the customers' facilities.

Low-cost hygrometers which can measure relative humidity are readily available for purchase. It is important to ensure that the hygrometer measures **relative humidity** as opposed to absolute humidity as this difference can be significant and could result in misleading measurements. For specific hygrometer product recommendations please contact Yoder Lumber directly.



Testing the Initial Moisture Content of Wood Products

Yoder Lumber routinely checks the moisture content of our wood products in order to ensure high quality standards. Customers are required to inspect and test the moisture content of the wood products they receive within 24 hours of receipt. Failure to do so will limit the scope of warranty claims that can be made by the customer. Since wood can quickly change in moisture content as a result of ambient temperature and relative humidity combinations it is essential that initial tests are done soon after receipt so that potential issues can be prevented. Several low-cost options for wood moisture measurement are available— contact Yoder Lumber for specific product recommendations.

Yoder Lumber reserves the right to decline warranty claims for damage caused by environments having excessive moisture content.

Storage & Installation of Wood Products

Wood products should be stored and installed in a properly controlled environment which is regularly tested for proper relative humidity and temperature levels. If a product is installed in a home or commercial building it is

essential that the building is capable of maintaining proper and steady ambient conditions. Wood products must not be exposed to any direct sources of moisture.

It should be noted that EMC can vary significantly throughout a building. Heat sources, air conditioners, fans, or other sources of strong moving air can cause these variations. Wood products should not be stored near any sources of excessively hot, dry, or moist air. Wood products must also be kept out of direct contact with water.

Wood must always be installed in a manner that allows for seasonal movement. Wood that is fitted too tightly against solid surfaces without ample room for expansion and contraction will likely result in either wood failure or damage to the surface it is fitted against.

Finishing

Customers should ensure that wood products are properly finished. Finishing should be done within a maximum of 30 days of receiving wood products and preferably within 7 days. Wood products must be finished on all sides, faces, and ends with a minimum of 3 coats of finish. Finish can significantly slow the transfer of moisture to and from wood products, however, most finishes are not designed to completely eliminate the transfer of moisture so proper ambient humidity and temperature levels must be constantly maintained.

Humidification

If a customer finds that their facility is too dry to properly store wood products, they have several options, varying in cost with the volume of air they wish to treat. Small-area humidification works very well for small to medium sized areas. These systems tend to be modular and are relatively simple to install. Larger high-pressure humidification systems that can effectively treat large volumes of air are also available. Yoder Lumber will gladly assist our customers in determining what is needed for your facility.

Given the extreme importance of proper storage conditions, Yoder Lumber declines to warrant wood products that are stored in facilities that do not constantly maintain recommended humidity and temperature levels.

Packaging

Although customers need to remove enough packaging from wood products to inspect them thoroughly when they are received, it is vital that they are properly repackaged if they will be stored for any period of time.

Non-porous stretch film should always cover the end grain of all wood products. The top and bottom faces of all products should also be kept well-covered. Keeping material covered can significantly slow the transfer of moisture to or from the wood products. It should be noted that packaging can only slow the impact of relative humidity and temperature on a wood product, it cannot eliminate it.

Additional Resources

Additional Resources are available online. Recommended links:

The Shrinking and Swelling of Wood and Its Effect on Furniture By Carl A. Eckelman

<https://extension.purdue.edu/extmedia/fnr/fnr-163.pdf>

Wood Equilibrium Moisture Content Table and Calculator

<http://www.csgnetwork.com/emctablecalc.html>