Wood will only perform properly if the wood is at the appropriate moisture content level for the application intended. Wood used outdoors should have a moisture content of 12 to 15 percent. However, wood used indoors must be dried to a lower moisture content level of 6 to 10 percent. Determination of wood moisture content is, therefore, of critical importance.

The basic technique for determining moisture content of wood is the oven-dry method. The procedure involves cutting a moisture content sample, weighing the sample to obtain original weight, ovendrying at 220°F for 48 hours, reweighing the sample to obtain ovendry weight, and using the following formula:

\[
\text{Moisture content (\%)} = \frac{F(\text{original weight} - \text{ovendry weight})}{\text{ovendry weight}} \times 100
\]

This technique for moisture content determination is generally accurate and consistent. However, it is time consuming and requires destroying a portion of the lumber. Cut moisture samples at least 12 inches back from the end of the board.

Moisture content of wood can also be determined by using electric meters. The most common type of portable electric moisture meter for wood measures the direct-current electrical resistance between pins driven into the wood. As moisture content decreases, the electrical resistance increases. Electrical resistance also varies with temperatures and extractive content of the wood; corrections are made for these variables. The effective range of electrical resistance moisture meters is from 6 to 30 percent.

Other portable electric moisture meters are based upon the effect that moisture has on the behavior of wood as a “capacitor” in a high frequency electrical field. These meters measure the “dielectric constant” or “power loss” of the sample. The capacitance of wood varies with wood density and moisture content. Such meters must be calibrated for each species to account for density...
variation. These meters have electrodes that may contact the surface of the lumber, but no pins need to be driven into the wood. The effective range of capacitance/power loss meters is from 0 to 30 percent moisture content.

Price range for portable electric moisture meters for wood is from about $50 to $500. The cost is determined by the sensitivity of the instrument and the features provided. A list of some American manufacturers of this type of equipment is given below. No claim is made that this is a complete list, and no endorsement is intended.

**Suppliers of Electric Moisture Meters**

** Data Tech  
3110 West Segerstom Ave.  
Santa Ana, CA  92705-0130  
(Phone:  714/546-7160)

* Delmhorst Instrument Co.  
51 Indian Lane East  
Towaco, NJ  07082  
(Phone:  800/222-0638)

* Gann Electronics, Inc.  
12265 West Bayaud Ave., Suite 100  
Lakewood, CO  80228  
(Phone:  303/980-8484)

* Lignomat  
P.O. Box 30145  
Portland, OR  97230  
(Phone:  800/227-2105)

* Valley Products and Design, Inc.  
Rt. 418, P.O. Box 396  
Milford, PA  18337  
(Phone:  717/296-8009)

** Wagner Electric Products  
326 Pine Grove Road  
Rogue River, OR  97537  
(Phone:  503/583-0541)

* Resistance meters  
** Resistance and power-loss or capacitance meters**

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